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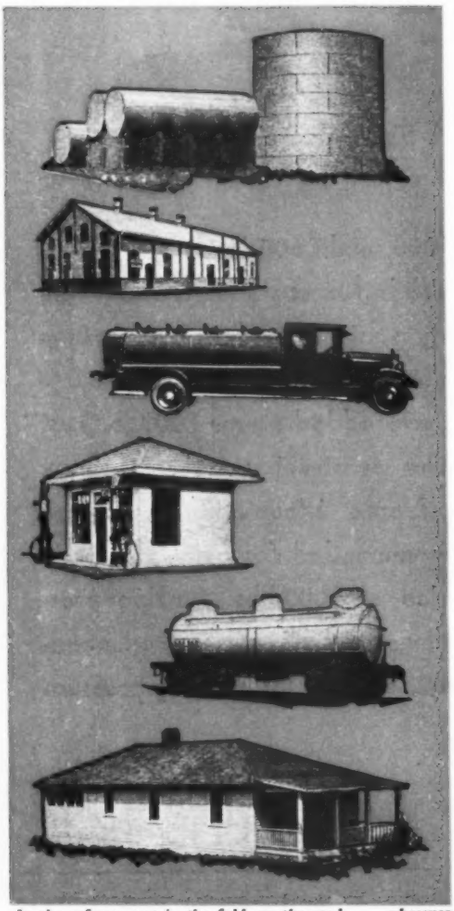

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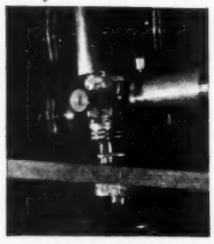

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Price Cutting Brings General Reduction

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Lower Crude Schedule Was Expected. Gasoline Prices and Stocks Most Important Factor in Whole Situation

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

By Andrew M. Rowley

Any doubt which may have existed that the crude oil price structure is dependent almost entirely upon gasoline prices should have been dissipated by the action of the major purchasers in announcing reductions in the crude price schedules in all but two main areas in the United States during the past week. At this writing Louisiana and Arkansas and California are the only two sections not affected by the reductions although it is believed lower prices for the first two States will be announced within a day or so.

Lower crude prices were expected and had been predicted for some time because of price cutting in numerous areas which resulted in gasoline, manufactured from cheaper crude, competing over a wide area with gasoline manufactured from crude purchased at the regularly posted prices of the major buyers. It would be well for the entire industry to remember the days of price cutting are past as far as the larger companies are concerned and that a policy has been adopted that all oils—both crude and refined—must move at one price level in each area regardless of what that level is.

This again answers the question "Will prices go any lower?" They will if there is any further price cutting which will permit any quantity of crude oil to move to market at a price which will affect gasoline prices in any area.

Proof of the influence low gasoline prices have on the crude oil situation is plain. A glance at the chart below shows how much lower production has been this year than last and also that crude oil stocks are much lower than at this time last year. Crude oil prices depend on gasoline prices and improvement will come when refiners curtail runs to stills and permit a material reduction in stocks of gasoline. For example, crude oil production in Oklahoma last week reached the lowest average in four years, yet the newly posted prices for crude are the lowest in 14 years.

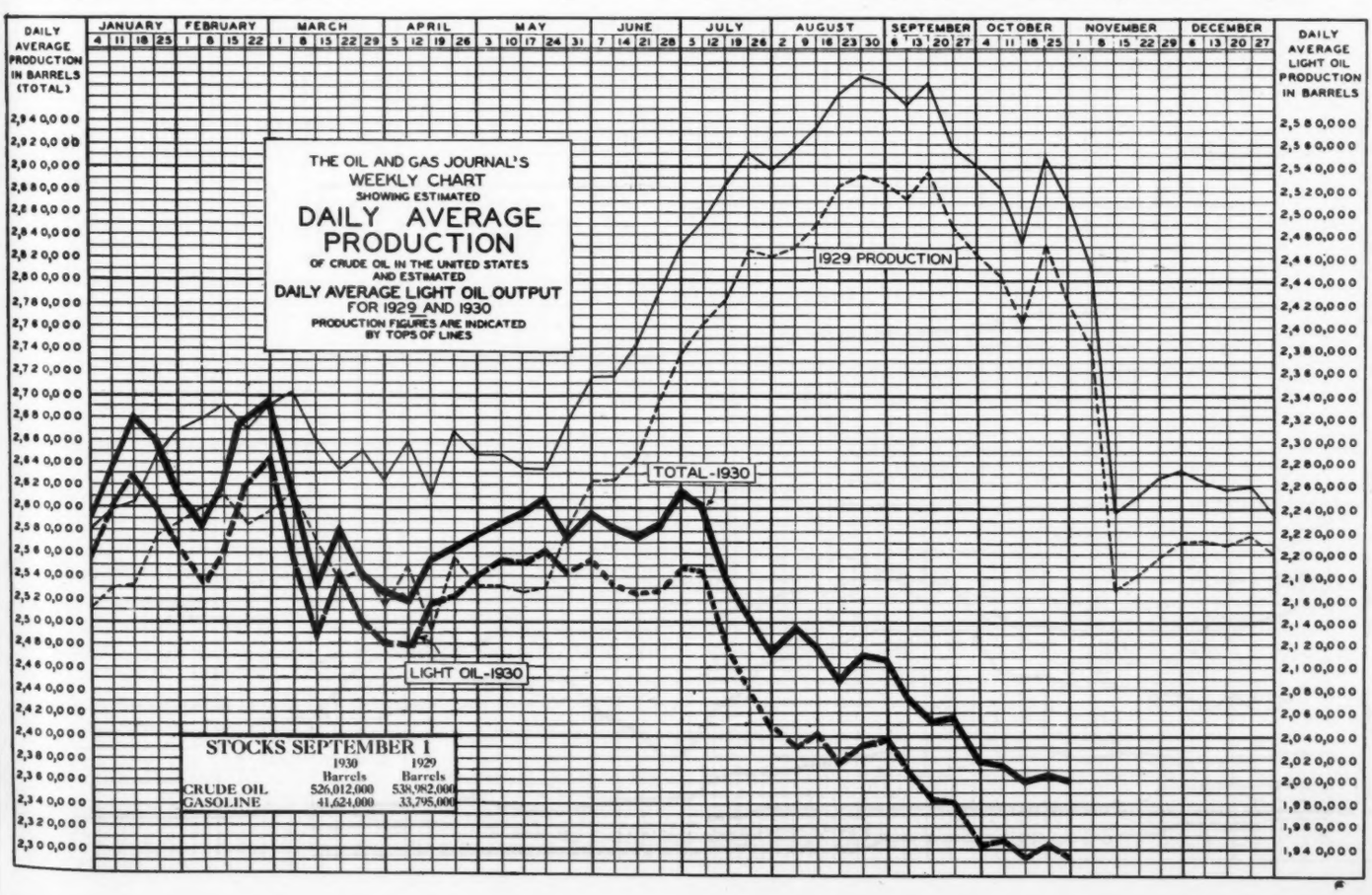
A real effort is being made to hold gasoline stocks to working requirements. Success of that effort and the elimination of price cutting will start the entire industry upward on the road to prosperity.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended October 25, and a comparison with the previous week follows:

	Oct. 25		Oct. 18	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	88,895	.....	87,985	.....
St. Louis-Pearson	23,435	.....	23,640	.....
Seminole	141,115	.....	148,335	.....
Northern miscellaneous	223,590	.....	224,635	.....
Southern fields	59,810	.....	59,915	.....
Total Oklahoma	536,845	.....	544,510	.....
West Texas—				
Hendricks	59,922	.....	61,585	.....
Yates	105,760	.....	107,480	.....
Remainder	109,465	.....	113,900	.....
Total West Texas	275,147	.....	282,965	.....
North Louisiana	36,440	5,410	36,810	5,360
Arkansas	16,425	36,340	16,465	36,375
North Central Texas	108,546	.....	108,285	.....
Texas Panhandle	85,916	.....	80,236	.....
East Central Texas	43,048	.....	42,199	.....
Kansas	115,520	.....	112,615	.....
Total Mid-Continent area	1,217,887	41,750	1,224,085	41,735
Gulf Coast	.....	186,544	.....	186,854
Southwest Texas	.....	110,896	.....	105,875
Eastern	113,000	.....	113,000	.....
Rocky Mountain area	99,511	.....	108,012	.....
California—				
Santa Fe Springs	93,750	.....	94,500	.....
Long Beach	99,000	.....	101,000	.....
Playa Del Rey	25,500	.....	23,500	.....
Elwood	38,000	.....	32,500	.....
Ventura Avenue	46,000	.....	47,000	.....
Kettleman Hills	24,000	.....	24,000	.....
Remainder of State	180,000	87,000	179,500	87,000
Total California	506,250	87,000	502,000	87,000
Total United States	1,936,648	426,190	1,947,097	421,464
Grand total	2,362,838		2,368,561	

Total Decrease 5,723 Bbls.; Light Oil Decrease 10,449 Bbls.



Crude Cut Relieves Market Tenseness

Believe Refinery Prices on Bottom. Only Depressing Factor Remaining Is Possibility of Tank Wagon Reduction

By W. T. Ziegenhain

Although lower gasoline prices were posted by the larger refiners in the Mid-Continent, following the general crude reduction in that area Monday, the cut has relieved the tenseness which was present for many weeks and plans for the future reconstruction of the market may now be made with more certainty. Buyers who have stayed out of the market, awaiting the crude cut which seemed inevitable for several weeks past, are now asking for quotations and on Tuesday several smaller refiners recognized this trend and raised their U. S. Motor price from 4½ cents to 4⅝ cents and were considering going to 4¾ cents immediately.

Natural gasolines were quoted at prices below those of a week ago and the immediate future of that market is not encouraging. Fuel oils assumed a better position and the higher gravity, low cold test fuels were generally quoted from 5 to 10 cents above the prices of a week ago. The demand for lubricating oils continued slow and trading was done at the lower end of the price range established two weeks ago.

Effect of Crude Cut

Refiners and marketers have watched the posting of lower prices on crude in several Mid-Continent fields during the past two weeks and realized that if this practice was to continue, a general crude reduction was inevitable. Crude prices as low as 50 cents a barrel were suggested and the actual posting of 75 cents a barrel flat for all grades by one purchasing agency was taken by some as a possible level to which crude prices might sink. The general reduction approximating 35 cents a barrel, which was made by the Stanolind Crude Oil Purchasing Co. Saturday, followed by a similar schedule by other major buyers Monday and Tuesday, dispelled this uncertainty.

This cut had been fully discounted in the refinery market for more than a week and those refiners who looked for an even greater reduction are now ready to raise their refinery quotation up to a level more in line with the newly established crude price.

U. S. Motor gasoline was generally quoted by the larger Oklahoma refiners at 5¾ cents, one-fourth cent below last week's quotations. Much lower prices are still present as a vital factor in depressing the market, but the 4½-cent gasoline that was so freely offered a week ago has vanished. Those refiners who previously quoted 4½ cents are now demanding 4⅝ cents and 4¾ cents for it. The same condition holds true in the case of lower endpoint gasolines but there is still plenty of all grades of gasoline being offered to hold prices near their present level.

Natural Gasoline

All grades of natural gasoline were generally quoted at 4¾ cents, with a few cars going slightly under that level. The demand for natural gasoline is below normal for this period of the year and is directly traceable to the slow-moving refinery gasoline market. Natural gasoline manufacturers have witnessed a gradually dwindling demand from the larger refiners who have been installing vapor recovering systems and stabilizing units to conserve the lighter fractions of their straightrun and cracked gasoline. These manufacturers have also had to share the effect of the sharp break in gasoline consumption during September and with production tending to increase as the winter is approached, the immediate future of the market generally is viewed with a little pessimism.

Kerosene

All grades of kerosene moved at the same price level as prevailing for several weeks in the past. The 41-43 gravity material, passing a good burning test, was generally traded at 3¼ cents, while the material high in sulphur brought only 3⅛ cents. An increasing demand for all grades of kerosene is apparent and is due to the colder weather in the northern states where large quantities of this material is consumed as fuel in portable kerosene stoves. The demand for kerosene has been so poor in the past months, however, that large stocks of this product have been built up and any normal demand would no doubt be readily filled without expecting any great change in prices.

(Continued on Page 143)

REFINED MARKET BAROMETER

The reduction of Mid-Continent crude prices naturally added weight to an already heavy refined oil market but this has been taken as a turning point in the trend of prices by many, so the immediate future of conditions are generally viewed with optimism rather than with pessimism. No important price changes resulted along the East Coast but trading became slow in lubricating oils, Diesel fuels and wax. Lower gasoline prices were posted by the larger refiners in the Mid-Continent but scattered material, so freely offered at 4½ cents a week ago has disappeared, indicating that a closer range of prices and greater stability of the market will result. Natural gasolines were reduced in the Mid-Continent but were fairly strong in California. Light gravity fuel oil, low cold test distillates and zero gas oil were more actively traded in all areas but there were no price advances. Lubricating oils and wax weakened further in all refining sections as a result of the general crude price reductions east of California.

Mid-Continent—Although gasoline prices were reduced by the larger refiners, there was less evidence of dumping at sacrifice prices. Fuel oils strengthened slightly and the balance of the list of refined products remained unchanged. Natural gasoline prices weakened and the future of the market is very uncertain.

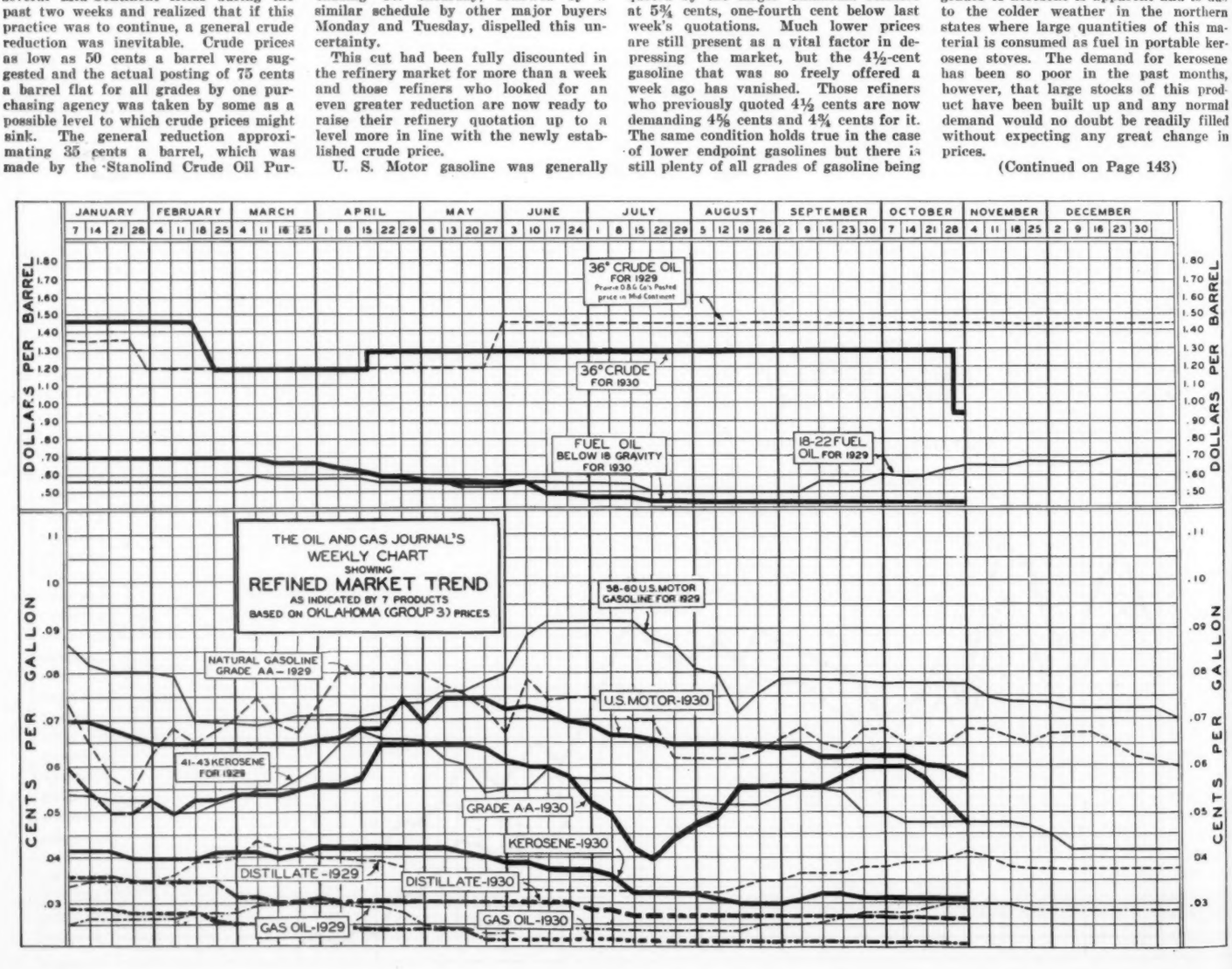
Atlantic Seaboard—There were no principal price changes along the eastern seaboard but Diesel fuels, lubricants and wax were more freely offered.

California—There were no price changes in California and the market appears to be marking time.

Pennsylvania—Neutral oils sold below last week's level of prices as a result of the Pennsylvania crude cut but other products remained unchanged.

Chicago—The possibility of a tank wagon cut withheld some jobbers from purchasing more than their current needs of gasoline but the market has been relieved of the uncertainty of a crude cut and many view the immediate future with optimism.

Gulf Coast—There were no price changes in the Gulf Coast market but neutrals were offered at slight price concessions when large volumes were involved in the trading.



Crude Prices Cut in Most Oil Areas

California, North Louisiana and Arkansas Only Divisions Not Affected by Past Week's Reductions

By James McIntyre

Prices for crude oil in many fields of the United States are the lowest in 14 years. An almost general cut in prices east of California took place in the past week of so drastic a character as to send prices toppling to where they were back in 1916 in some cases. On November 29, 1916,Oklahoma-Kansas oil was quoted at the flat price of $1 per barrel. It has never since been below that figure until October 25 of this year when it was posted at 92 cents, with 36 gravity, 95 cents and 37 gravity, 98 cents.

The market was cut in New York, Pennsylvania, West Virginia, Ohio, Indiana, Illinois, Kentucky, Michigan, Kansas, Oklahoma, Texas, Montana, Wyoming, and New Mexico. It all started when a few North Texas refiners lowered their crude oil prices a few weeks ago, and their example was followed by a few Oklahoma refiners. Then the big companies went into the market with a general revision downward. About 1,650,000 bbls. of the 2,363,000 bbls. of daily production in the United States was affected by the cut.

Oklahoma and Kansas were made to feel the depression in crude and refined oil prices on Saturday, October 25, when the Stanolind Crude Oil Purchasing Co. (Standard Oil Co. of Indiana), posted a new set of crude oil prices effective at 7 o'clock that morning. Beginning with 69 cents per barrel for crude below 29 degrees, it made a 4-cent differential for each degree upward to and including 34-34.9 degrees, which it quoted at 89 cents and thereafter a 3-cent differential for each degree upward to 44 degrees and above, which it posted at $1.19.

The price change was not unexpected. With Oklahoma and Kansas producers it was merely a question of which of the large purchasing companies would follow the lead of the Humble Oil & Refining Co. in cutting crude prices in areas where local refiners and producers had already started slashing crude values. In Oklahoma, cuts had been made by the Champlin Refining Co., the White Oak Refining Co., and American Refining Properties, and some other local refiners had adopted one or another of the different price schdeules posted by the three companies last named. Oil in bulk had been reported as having been sold as low as 80 cents per barrel under the market in Gray County, Texas.

The Magnolia Petroleum Co., on Monday, October 27, met the Stanolind prices in Oklahoma and Kansas for oil from 29 degrees upward, but on the lower gravity oils it posted another set of prices. The Magnolia's prices were as follows: Below 26 degrees, 53 cents, with a differential of 4 cents for each degree upward beginning at 26-26.9 degrees at 57 cents and ending with 34-34.9 degrees at 89 cents; thereafter a 3-cent differential upward to 44 degrees and above at $1.19. The Prairie Oil & Gas Co. met the Stanolind schedule in Oklahoma and Kansas and extended it to all the fields in North Central and East Central Texas where it buys oil. The Magnolia and Stanolind had already made similar cuts in the North Central and East Central Texas areas. The Humble Oil & Refining Co. on October 28 adopted the Stanolind price schedule in North, East and Central Texas, but made a top price of $1.07 for crude of 40 degrees and upward. The Carter Oil Co. did likewise on the same day in Oklahoma and Kansas. The Texas Company on October 28 adopted the Stanolind prices in Oklahoma fields, as did the Gypsy Oil Co. The Magnolia on October 28 made a top price of $1.07 for 40° and over, effective in Oklahoma, Kansas and North, East and Central Texas.

The Humble Oil & Refining Co. in Crane, Upton, Crockett, Howard and Glasscock and Ector Counties in Texas and in Lea County, New Mexico, posted new prices on October 28 as follows; Below 25 degrees 50 cents, with a 2-cent differential for each degree upward to 36 and above at 74 cents. For Winkler and Pecos County it posted below 25 degrees 55 cents, with a 2-cent differential for each degree upward to 36 and above at 79 cents.

The Humble Oil & Refining Co. made another cut in Gray, Hutchinson and Carson Counties on October 28 as follows: In Carson and Hutchinson Counties: Below 29 degrees 45 cents; 29-29.9 degrees 49 cents, with a 4-cent differential for each degree upward to 34-34.9 degrees at 69 cents, and thereafter a 3-cent differential for each degree upward to 40 degrees and above at 87 cents. The Magnolia Petroleum Co. and Prairie Oil & Gas Co. met this price schedule on the same day. In Gray County below 29 degrees 50 cents with a 4-cent differential for each degree upward to 34-34.9 at 74 cents and thereafter a 3-cent differential for each degree upward to 40 and above at 92 cents. Magnolia Petroleum Co. and Prairie Oil & Gas Co. met this cut on the same day. For Grade B Coastal oil below 25 gravity the Humble posted 75 cents and for Grade B and Refugio light oil it posted 25-25.9 gravity at 92 cents, with a 2-cent differential for each degree upward to 40 and above at $1.22. Humble posted 75 cents for Mirando, 90 cents for Salt Flat, 90 cents for Darst Creek and $1.10 for Pettus, and for Grade A. Gulf Coast crude is posted 75 cents.

Oklahoma Production Is Down

Notwithstanding production of Oklahoma is down to where it was in October, 1926, when Oklahoma crude oil of 37 gravity was selling at $2.37 per barrel, the price was cut by one Oklahoma refiner to 75 cents per barrel for all grades, and the Stanolind Crude Oil Purchasing Co.'s price reduction brings it to 98 cents per barrel for 37 gravity oil. But in October, 1926, 60-62 400 endpoint gasoline was selling at 10½ cents per gallon in Group Three territory while at this writing it can be purchased for 4¾ cents per gallon. Another point to keep in mind is that in the fall of 1926 the actual production represented all the State was capable of producing from the wells then completed, while the present-day actual production is less than half of the potential production of the present-day wells in the State. Oil was then hard to get. Now it is a drug on the market.

Statement by Ellison

In making its announcement of the cut in crude prices the Stanolind Crude Oil Purchasing Co., through its president, R. S. Ellison, issued the following explanatory statement:

"Competitive conditions force us to reduce the prices we can offer to pay for crude oil in the Mid-Continent Field. For several months past the wholesale and retail prices obtainable for gasoline and other refined products have been trending downward.

Price cutting on finished products has been facilitated by oversupply and consequent existence of distress conditions. The marketers we serve have been meeting price reductions ranging from 3 to 5½ cents a gallon on gasoline throughout the territory in which they operate. In consequence, the spread between the price we are paying for crude oil and the price of the finished products is the narrowest it has been for several years and is not sufficient to permit of profitable operation.

"On October 16 and 17 there was a reduction in the price of competitive crude in the State of Texas. Several competing companies have met these conditions by lowering their posted prices for Mid-Continent crude. Others are purchasing crude for still lower prices. Many of these concerns are directly competing in wholesale and retail trade with the companies we serve. Obviously, no company conducted on a sound business basis can continue to pay higher prices for its raw material than its competitors pay. These conditions force us to meet the new price level.

Approves of Proration

"The conservation of oil is not only sound national policy from the standpoint of economics and national defense; it is equally essential to the stability of the oil industry. The effort of producers to eliminate physical and economic waste and to promote conservation through curtailment and prorating of production is commendable. We are as much interested in the success of conservation as are the producers, but prorating cannot eliminate competition. Prorating has prevented demoralization. Had prorating not been practiced the amount of crude oil that would have been thrown upon the market would have brought prices so low that in comparison the present prices would have appeared high indeed."

Independents Cut First

When the White Oak Refining Co. on October 20 announced it would pay 75 cents per barrel for crude regardless of gravity it put a price on Oklahoma crude that has not been duplicated since the days of Cushing. On January 1, 1915, Oklahoma-Kansas crude (outside of Healdton) was quoted at 55 cents per barrel. On February 8 it dropped to 45 cents, and on February 15 to 40 cents; which low price was maintained until August 2, when it was boosted to 50 cents; on August 4 to 55 cents; August 11 to 60 cents; August 19 to 65 cents; August 21 to 75 cents, which price stood until September 11 when it was advanced to 80 cents. The price continued to increase from that time on as Cushing declined and no new fields were brought in large enough to upset the market, finally reaching a high of $3.50 per barrel in 1920. On October 27 the White Oak changed its buying policy, and adopted the Stanolind schedule and prices.

The American Refining Properties of Wichita Falls, Tex., which buys oil in North Texas and southern Oklahoma, posted a cut in price on October 22. For southern Oklahoma crude below 28 gravity it posted a price of 50 cents per barrel, at the well; 28 gravity 53 cents per barrel and a 3-cent differential for each degree upward to and including 40 degrees and over which it posted at 89 cents per barrel. For North Texas crude the company posted a flat price of $1 per barrel delivered at the refinery, or an average of about 82½ cents at the well, plus pipe line charge.

On October 22, the Eason Oil Co. of Enid, Okla., met the prices posted earlier by the Champlin Refining Co. which started off with a 90-cent price for 32 gravity oil and a 3-cent differential for each degree upward to 44 degrees and above, which it quoted at $1.26. On Monday, October 27, the Champlin Refining Co. and the Globe Refining Co. announced they had met the Stanolind prices, effective on Saturday, October 25, and the Eason Oil Co. adopted the Stanolind prices, effective October 26.

Cut in New Mexico

Effective October 25, the Continental Oil Co. posted a price of 75 cents per barrel in the Artesia (Jackson) Field in southeastern New Mexico. This was 30 cents under the Ohio Oil Co.'s price of $1.05 but on October 28 the Ohio met the Continental price of 75 cents.

Derby Quits Buying

Effective October 24, the Derby Oil & Refining Co. quit buying oil in Kansas temporarily. The company announced that if producers on its lines had no other way of disposing of their oil the Derby company would store it at the customers' expense and would purchase 50

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NEW JERSEY, STANDARD AND PURE COMPLETE PIPE LINE AGREEMENT

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Oct. 27.—One of the most extensive networks of crude oil pipe line in the country will be linked as a result of negotiations now being completed in connection with the new Ajax line from the Glenn Pool in Oklahoma to Wood River, Ill., Standard Oil Co. (New Jersey) announces. The line has been under construction during the summer months and is making rapid headway.

Ownership in the Ajax Pipe Line Co., which is building the line, will be participated in by both the Standard Oil Co. (New Jersey) and the Pure Oil Co. From Wood River, the destination of the 10-inch line now building, arrangements have been made with the Illinois Pipe Line Co. and other eastern carriers to move the crude on to its destinations in Ohio, Kentucky, West Virginia and Canada. This will give the Pure Oil refineries near Charleston, W. Va., Toledo and Newark, Ohio, connection with the company's production in the Mid-Continent Field. Connections will also be made with the Standard Oil Co. (New Jersey) refineries at Parkersburg, W. Va., and other points, the statement says.

Under the arrangement, the Pure Oil Co. will utilize much of the Carter Oil Co.'s production convenient to the new Ajax line. In return, the Humble Pipe Line Co. will build into the Van Field in East Texas, in which the Pure is the largest operator. In order to effect this, a new line will be constructed by the Humble Pipe Line Co. from the Van area to Shreveport, La., where it will hook up with the Standard Pipe Line Co.'s pipe line running to the Baton Rouge refinery of the Standard Oil Co. of Louisiana.

In effect, therefore, the statement points out, what will happen will be that the Standard Oil Co. (New Jersey), through its subsidiaries, will trade part of its Mid-Continent oil for Pure Oil Co.'s crude in East Texas, the product being carried—part way, at least—through mutually owned lines.

"The new arrangement not only permits both companies to enjoy a greater degree of flexibility in handling and transporting their crudes," the announcement concludes, "but will have the effect of permitting the transporting pipe lines to use their resources to the best advantage in meeting current and emergency situations as they may develop without involving duplication of costly facilities."

Current Situation in the Oil Industry

Principal Problem Today Is Reconciling Itself to Actual Conditions. Conservation Policy Now Established

By R. C. Holmes
President, The Texas Corporation*

The oil industry is suffering, to some extent, from the distress in other lines, but more largely from causes within its own activities.

The waste has been very great, both actual and economic.

It is roughly estimated that the waste in the producing branch of the industry, alone, in a period of a little over 20 years has been upwards of $4,000,000,000, calculated at approximately 10,000,000,000,000 cubic feet of gas, over 2,000,000,000 bbls. of recoverable oil, and approximately $1,000,000,000 in unnecessary drilling facilities and other expense which could have been avoided had the business been carried on in an orderly, economical and conservative way. And to a very large extent this waste continues, probably the greatest being in the waste of gas, which waste is now fully one-third of the quantity being consumed.

The multiplicity of facilities, particularly distributing facilities, has been and is wasteful. There are some 10,000 producing units, 270 refining units, and about 25,000 marketing units in the industry.

While the evil practices that creep into marketing are not peculiar to the oil trade alone, they, nevertheless, because of this very large number of marketers, in the aggregate constitute difficulties that have a depressing effect.

Code Handicapped

The Code of Practices for Marketing Refined Petroleum Products adopted generally by the industry about a year ago has made some progress, and in average times would have met with greater success, but with the pressure of excessive stocks, both crude and refined, and the necessity for cash on the part of some, an unusually severe competition for outlets, or volume, frequently regardless of costs and returns, has prevailed; and strangely enough, usually those who pursue unethical and unsound merchandizing policies are the ones least able to withstand the consequences of the demoralization that results.

The large increase in imports has also had its effect, and while I think it is not generally considered that import duties on petroleum products are a cure for the depressions in the industry, it is certainly water on the wheel of the millers who are trying to grind out the bill.

Russia a Factor

Russia is a factor. She was producing oil before America. In 1901 she produced 85,000,000 bbls. of crude oil—about 15,000,000 bbls. more than the United States. In 1915, 68,000,000 bbls., and after the counter-revolutions in 1920 and 1921, at which time much of their field and other equipment was destroyed, they were down around 25,000,000 bbls. The equipment and methods, however, were more or less antiquated and since then modern facilities have been built up and modern methods generally prevail in their oil industry.

They have increased their refining activities, including two new refineries on the Black Sea, where they formerly had none; with large, new pipe lines leading from the producing fields at Baku and Grozny, and their crude production will approximate 128,000,000 bbls. this year. They have established themselves in many of the European and some other markets, generally with low prices and, as stated, they are a factor in the present situation.

If their industrial and economic policies succeed and they are enabled to provide themselves with the benefits they expect, then they, a nation which has a population considerably in excess of that of the United States, will consume a very large quantity of their own petroleum products. Whether they succeed or not, in all probability the Russian nation will continue to be an exporter of petroleum products in quantity.

Principal Problem Today

The principal problem of the industry, however, today lies largely in the difficulties of adjusting and reconciling itself to the actual conditions of conservation and, to some extent, in a lack of confidence that we are actually embarked upon a permanent and definite policy of conservation which a few seem to think inconsistent in that it should come into fullest effect when oil has become temporarily so plentiful.

In the aggregate, these influences, with others, have brought about an average gasoline price in the United States, exclusive of state taxes, about 5½ cents per gallon below the average for the years 1921 to 1928, inclusive; and crude prices which are lower than any yearly average for the past 12 years, except 1928.

It is probably fortunate for the Treasury Department that American petroleum industry cannot make a consolidated income tax return for 1930, although this in itself need not be alarming as net earnings have averaged only a little over 3 per cent for the period of the last 10 years on the total investment in the industry. While some units are paying for the privilege of working, others are still making a living wage. And compared with other industries, the volume of business is good.

Growth of Gasoline Demand

World production of crude oil has increased 285 per cent since 1913, or from 385,345,000 bbls. to 1,484,451,000 bbls. in 1929, and the world's gasoline business from over 48,000,000 bbls. in 1913 to 488,400,000 bbls. in 1929.

America's gasoline business has become the major part, or backbone, of the industry. The 1930 business, including exports, will probably be about 5 per cent above 1929, which compared with the volume of business in other commodities is excellent. And people will continue to use gasoline. They may not buy automobiles, and they may wear out all of the old tires, or run on the rims, but they have spread their activities too far to walk.

Fuel oil and lubricating oil sales are off somewhat because more directly affected by the industrial inactivity.

About 85 per cent of all installed machinery horsepower, that is, of prime movers, including steam and water power generating machinery, is fueled by gasoline. Approximately 80 per cent of this is in automobiles, trucks and buses, the balance in tractors, stationary machinery, water craft and airplanes. This machinery is not going to do with any less gasoline per mile or per horsepower than in the past.

The natural gas production and distribution, a very important branch of the industry, is experiencing a very rapid development. Consumption, since 1913, including some 242,000,000 feet pipe into Canada and Mexico, has increased about 330 per cent in 1929, to, in round numbers, 1,918,000,000,000 feet; and it is estimated that in 1930 it will exceed this figure by some 20 per cent. Major natural gas pipe line projects now under construction total over 3,000 miles of main trunk lines having a capacity capable of eventually increasing the 1930 volume by about 10 per cent, mostly in this Middle West territory.

Conservation to Continue

There can be no reasonable doubt that conservation is now a well established policy of the Federal Government and of the oil-producing states and, being generally recognized as unquestionably in the interests of all concerned, it will inevitably go forward. It has in it the opportunity for determined and defined underground reserves, and an insurance that will relieve the industry of the burden of large aboveground stocks; and with it all the opportunity for economies that are so much desired.

We are, therefore, today, and I have no doubt for some time to come, working under basically new conditions.

Conservation of oil is not new. Over 20 years ago laws had been enacted in Indiana, Louisiana, Oklahoma and Arkansas, designed to prevent the waste of oil and gas. At the same time the Federal authorities, as well, realizing that petroleum is an indispensable, irreplaceable resource that will eventually be exhausted, were gradually more and more convinced of the importance and necessity of definite and, to whatever extent possible, concerted conservation activity.

But as can be readily seen, conservation in periods when there was a shortage was difficult because of the insistent demands for the product, and also because of the reluctance, and in many instances the refusal, of operators to cooperate because of inadequacy of the law.

So that it seems particularly fortunate that when the activity is now finally well under way we find ourseives in a situation where the industry can well afford to submit to the strictest possible observance.

Potential Double Production

The rapidly increasing volume of the business, with the effects of the estimates from time to time, had greatly accelerated the activities in the exploration and development of possible productive areas, and because of the highly competitive situation applying in practically all producing fields and the established procedure in such development, there has resulted a situation where the potential production of crude oil in the United States is fully double the actual production. And the foreign situation as a whole, excepting Russia, is practically a parallel one.

Fortunately, while any plan of activity in this country may not coincide, or correlate accurately or equitably with foreign operations, because of the fact that American and foreign interests are carrying on operations in the same countries and in many respects paralleling, there should be no very serious difficulty in practical co-ordination so far as results are concerned.

These are merely my observations of conditions and in some respects characteristic of other industries and are not necessarily discouraging ones.

Corrective Measures

There is much of a corrective character that can be accomplished within the industry to improve conditions and the dis-

(Continued on Page 105)

*Before seventh Conference of Major Industries, University of Chicago, October 22.

SECRETARY WILBUR CONVINCED IDEA OF CONSERVATION GROWS

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Oct. 27.—The idea of conservation is growing throughout the United States and is influencing the minds and action of the people as never before, declared Dr. Ray Lyman Wilbur, Secretary of the Interior, and chairman of the Federal Oil Conservation Board, and this tendency is shown in no other subject more than in oil and gas.

"I am convinced," he added, "that with increased experience and observation our various natural resources are the most important things within our power."

"Your mail must bring you many letters commenting on your work related to the conservation of oil and gas," the writer suggested. "Do many of them contain criticism of the President's policy?"

"Such letters are received only from those who have some immediate selfish interest which they think the policy of conservation might harm," he replied with the promptness that characterizes all of his utterances. "But they are wrong. Conservation will really help them."

"Do you receive letters supporting these policies as applied to the public domain from such States as Wyoming and Colorado?"

"I am receiving an increasing amount of intelligent support from leaders in those States," said Doctor Wilbur, "and a better understanding of these problems is growing. The truth is they have been compelled to do some thinking about these problems that passed by them before. Of course, the real difficulty is that people are more and more saying these things ought to be done but they want the other fellow to do them. They have not quite grasped the idea that they must do their share. The main difficulty has been that the term conservation means different things to different people. What I have insisted upon all along is that conservation means wise use at the right time. Unless we can develop a national policy based upon all science has brought to us and work out a method to keep political subdivisions, existing laws and judicial precedents from interfering with our progress we are going to have some major difficulties. We have got to a point where the balance between the size of our population and the size of our continent is a pretty definite thing."

"Have the western states changed their feelings about so much taxable property being removed from their jurisdiction by the limitations placed upon their use of the public domain?"

"The public lands commission, of which Former Secretary Garfield is the chairman, is working on that problem among others and we will know more about that next December. You must remember that conservation and existing tax laws are often in conflict. The greatest rigidity in many states compels men to pay taxes every year on unproductive property. We must have some system that takes into account income from the property and not on property as it stands. The public lands commission may say something about that. We must take a view of conservation through spectacles other than those of taxation."

Great interest attaches to the forthcoming report of the public lands commission because of the extensive discretion conferred upon it to consider and recommend plans for bringing the public domain into the greatest use. They will even take up to question the advisability of turning the public domain over to the several states in which they are located under restrictions that may be imposed by Congress.

Refined Market Discounts Crude Cuts

Even After Reduction of 35 Cents in Posted Price of Mid-Continent Oils No Margin Left for Profit

By W. T. Ziegenhain

A summary of refinery realizations indicates that the general Mid-Continent crude cut, effective early this week, has already been fully discounted by the refined oil market and prices are not expected to go lower. Even after the 35-cent reduction in the posted price of crude, there is no margin of profit indicated for a skimming operation, skimming and cracking, nor a complete operation including the manufacturing of lubricating oils and bright stock. It is impossible to establish any standard series of costs in the manufacture of the various commodities, due to the fact no two plants operate exactly the same, and the margins shown here intend only to serve as typical of what may be expected running Seminole crude in modern plants of 5,000 barrels capacity.

In the first case, the margin was figured on an ordinary modern skimming plant, manufacturing only gasoline, kerosene, distillate, gas oil, and fuel oil. It was assumed this plant would have a bare manufacturing expense of 11 cents per barrel. In the second case, it was assumed that the plant operates as a modern unit balanced for maximum cracking. In this plant it was assumed that 72 per cent gasoline would be manufactured and all fuel oil cracked in a non-residuum operation. It was also assumed that the bare manufacturing and maintenance expense would be 31 cents per barrel, an increase of approximately 20 cents per barrel based on the crude charged compared with the manufacturing and maintenance expense in the skimming operation.

In the third case, it was assumed the plant reduced the crude to make suitable lub stock bottoms which were further processed, first to make a maximum yield of bright stock and then a maximum resultant yield of neutrals. The cracking capacity in the third case is naturally lower than in the second case, due to the lesser charging stock available and the gasoline yield is proportionately reduced.

Comparison of Margins

Under the conditions outlined, the skimming plant shows a manufacturing loss of 6 cents per barrel before paying for overhead, depreciation, sales expense, etc. Considering an investment of $1,650,000 in the plant, including tank cars, the final loss from operation is shown as 30 cents per barrel. The combined skimming and cracking plant shows a profit from operation of 19 cents per barrel before the indirect charges are applied against this margin. On the basis of an investment of $2,250,000 the depreciation, sales expense, overhead, etc., reduce this profit to a 12-cents-per-barrel loss. On this basis it appears that it remains profitable to crack.

In the third case, in which maximum yields of bright stock and lubricating oils are made, a refinery margin of 16 cents per barrel is shown and the net margin, after paying all indirect charges, shows a loss of 21 cents per barrel. This indicates that the manufacture of bright stocks and lubricating oils did not pay according to the present level of refined oil prices. This may or may not be true in the individual cases, and depends considerably upon the quantity produced, in which case there is a decided advantage accruing to the larger plants. The price of 21 cents was taken on the bright stock and it was assumed that the plant would make 10,500 barrels of this material per month. The cost of the base oil was figured at 1½ cents per gallon. The total manufacturing expense in making bright stock, including the cost of the base oil, was figured at 16.2 cents per gallon. The investment in the bright stock plant and the lub plant was figured slightly in excess of $700,000, bringing the total investment in the plant to $2,950,000.

Seminole Crude Used

These three types of operation were figured on Seminole crude, in as much as it is a typical Mid-Continent oil, and is suitable for running in the three types of plants shown in the analysis. A larger quantity of Seminole crude is also produced than any other single crude in the Mid-Continent, and this makes its choice portray conditions typical among a greater number of plants.

Conditions Prior to Cut

For several weeks past, U. S. Motor gasoline has been selling as low as 4½ cents from some Mid-Continent refineries. At the same time 39 gravity crude was posted at $1.39½ per barrel and it is obvious there was little chance of a profit in refinery operations under these conditions.

The low gasoline price was the result of many factors, but it is apparent, as stated previously, that the crude cut was fully anticipated. Even with a price of 5 cents per gallon for gasoline under the old crude schedule a refinery loss of 41½ cents per barrel resulted in the average skimming plant, with a total loss of 65½ cents per barrel after paying all sales, overhead, depreciation and other indirect charges. The combined skimming and cracking plant showed a loss per barrel of 16½ cents at the refinery, and a total operating loss of 47½ cents after paying all indirect charges. In a similar manner, the complete plant showed a refinery loss of 19½ cents, and a total loss after paying all expenses of 56½ cents per barrel.

Plant Investments

In all of these cases it has been assumed that the plants are modern in every respect and the investments have been figured on the basis of building the plants new. There has been a distinct trend toward lessening the refinery investment for any given work. In other words, an ordinary topping unit completely fractionating all overhead cuts is now available at probably half the cost of a distillation unit necessary to run the same quantity of oil, such as used five years ago. Similar savings in the total investment have been made in other phases of the refining process, except possibly in the lubricating oil manufacturing equipment. The unit cost has been decreased here also, but the investment in equipment has been materially increased during the last few years in order to produce motor oils meeting the popular demands and having such characteristics as low pourpoint, high flash, a good temperature viscosity curve, etc.

Refinery revenue per barrel of crude run based on skimming 39 gravity Seminole crude in a 5,000-bbl. modern topping unit and selling all products at present tank car spot prices:

Yield from crude—	Price per gal.	Revenue per bbl.
39.0% Gasoline (U.S.M.)	$0.05	$0.80
5.0% Kerosene (41-42 Gr.)	.03	.06
3.0% Distillate (170 fl.)	.02⅞	.04
20.0% Gas Oil (32-33 Gr.)	.02¼	.19
30.0% Fuel Oil (19 Gr.)	.50 (bbl.)	.15
3.0% Loss		
100.0%		$1.24
Posted crude price	$1.04	
Pipe line charge	.15	
Bare manufacturing expense and maintenance	.11	
Plant expense		$1.30
Refinery margin per barrel skimmed		$0.06 (loss)
Sales, traffic and overhead expense	$0.10	
Interest, taxes, depreciation and insurance	.14	.24
Net profit from operations		$0.30 (loss)
Investment in plant (including tank cars)	$1,650,000	

Refinery revenue per barrel of crude run based on skimming and cracking 39 gravity Seminole crude in a modern 5,000-bbl. balanced plant and selling all products at present tank car spot prices:

Yield from crude—	Price per gal.	Revenue per bbl.
72.0% Gasoline (U.S.M.)	$0.05	$1.51
5.0% Kerosene (41-42 Gr.)	.03	.06
8.0% Distillate (170° fl.)	.02⅞	.10
6.0% Coke	2.00 Ton	.02
9.0% Loss and gas		
100.0%		$1.69
Posted crude price	$1.04	
Pipe line charge	.15	
Bare manufacturing expense and maintenance	.31	
Plant expense		$1.50
Refinery margin per barrel run		.19
Sales, traffic and overhead expense	$0.10	
Interest, depreciation, taxes and insurance	.21	.31
Net profit from operations		$0.12 (loss)

Division of Expenses		Charged on Investment	
Sales	$0.035	Interest	5.0%
Traffic	.010	Taxes	1.0%
Overhead	.055	Depreciation and obsolescence:	
		Cracking plant	20.0%
	$0.10	Balance of plant	8.0%
		Insurance	1.0%

Refinery revenue per barrel of crude run based on completely refining 39 gravity Seminole crude to make bright stock and lubricants in a modern 5,900-bbl. plant and selling all products at present tank car spot prices:

Yield from crude—	Price per gal.	Revenue per bbl.
60.0% Gasoline (U.S.M.)	$0.05	$1.26
5.0% Kerosene (41-42 Gr.)	.03	.06
6.0% Distillate (170 fl.)	.02⅞	.08
1.5% Lub Stock (280 Visc. @ 100)	.15½	.10
7.0% Bright Stock (150 Visc. @ 210)	.21	.62
10.0% Fuel Oil (60% sludge)	.40	.04
4% Coke	2.00 Ton	.01
6.5% Loss and gas		
100.0%		$2.17
Posted crude price	$1.04	
Pipe line charge	.15	
Bare manufacturing expense and maintenance	.82	
Plant expense		$2.01
Refinery margin per barrel run		$0.16
Sales, traffic and overhead expense	$0.10	
Interest, depreciation, taxes and insurance	.27	.37
Net profit from operations		$0.21 (loss)
Investment in plant (including tank cars)	$2,950,000	

Division of Expenses		Charges on Investment	
Sales	$0.035	Interest	5.0%
Traffic	.010	Taxes	1.0%
Overhead	.055	Depreciation and obsolescence:	
		Cracking equipment	20.0%
	$0.10	Balance of plant	8.0%
		Insurance	1.0%

Added Monthly Plant Expenses Due to:	
Making bright stock	$71,400
Making lubs	8,500
	$79,900

PLANT MARGINS VARY FOR EVERY SET OF CONDITIONS

In the accompanying article the writer has attempted to summarize refinery costs and earnings in Oklahoma based on present prices. The accuracy of the conclusions drawn is naturally dependent upon the accuracy of the assumptions made. It is intended to cover a general situation in the Mid-Continent at present and to gain an accurate understanding of any particular case, it is of course necessary to substitute actual conditions as they exist in any one plant and no two analyses will be the same.

Any suggestions from plant operators regarding additional phases of this problem will be welcomed. Criticism of the data given in the accompanying article is invited.

Jersey Company Analyzes Proration

Advantages Declared to Far Outweigh Its Inconveniences. Moral Shown in Wake of World Production

NEW YORK, Oct. 27.—Conservation and orderly development of American oilfields, intelligent co-operation in proration, and world co-operation in the development of the industry on an international basis, are seen as the prime requisites of the petroleum industry today by Standard Oil Co. of New Jersey in the current issue of "The Lamp."

Discussing "The Wake of World Production," the "Lamp" says: "In the days before automatic steering and course recorders on ocean-going vessels, it was a wise navigator who kept an occasional eye on the wake that stretched out behind the ship, like a winding ribbon of white over the gray ocean. For it told him how straight a course his helmsman was steering, what the 'yaw,' or deviation, was.

"If our navigator were to take off from the deck of his ship and, flying high, were to photograph that long, white wake for miles back, he would have a record not unlike the chart of world production here.

Position Changed

"In 1910 foreign countries accounted for 36 per cent of the world's petroleum. In 1923 they produced less than 28 per cent. In 1929 foreign output swelled to 32.5 per cent of the total, and for the first six month of the current year it reached 35.5 per cent. In between these points lies the tale of the rise and fall of a score of pools in many lands whose names are still household words in the oil business.

"And even that is only half the story.

"Twenty years ago the United States' share of the international petroleum output was something less than it is now—but look at the difference. With shut-in production and scientific methods of recovery, the estimated potential output of American fields is nearly 4,000,000 bbls. a day, yet this country is by no means in the same completely dominating position it once held in the world production picture.

"The varying course of crude supply over the last two decades makes a highly interesting story. It is a story with a moral to it, and the moral is this:

"Production abroad is no longer just an auxiliary reservoir from which any part of the world's requirements which the United States cannot supply may be drawn. If that were the case the industry could go ahead and overproduce to its heart's content, secure in the knowledge that exports would take the surplus off its hands. On the contrary, foreign crude is now in active competition with the American product for world markets.

"That is one point. The other concerns the future. The extensive exploration of the last 10 years or so has disclosed unsuspected treasures of raw material in many lands. The potential output of these fields—and of others still undiscovered—has scarcely been touched, while the history of producing areas in the United States has been mostly a succession of feverish drilling and rapid draining.

"In cold figures the United States still leads the producers of the earth, and probably will for years to come. But behind those figures the picture has changed. The oil business today is no longer exclusively an American industry. It is a world enterprise. And the country should draw judiciously upon its remaining reserves if the American oil man expects to stay in front of his fellows in the future.

Story of Two Decades

"Let's follow the rising line of crude production on the accompanying chart.

"With the exception of 1917 when the Mexican output increased nearly 50 per cent, the trend of world production follows pretty much along the line of that in the United States until we get to 1919. Again it was Mexico that started the flood of foreign oil which in 1920 forced a definite rift in the lines of United States and world output, for in that year production in the country south of the Rio Grande climbed another 75 per cent. Venezuela, too, while as yet not producing enough in actual barrels to affect the total supply much, had been coming along at a fast clip and in 1921 nearly trebled her output.

"It was about this time that the American petroleum industry, still confused by the almost hysterical clamor for 'more oil during the hetic months of the World War and alarmed by predictions of vanishing reserves in the ground, started an intensive drive to get all the crude it could while the getting was good, so to speak.

"Two years of extensive exploration and uncontrolled wildcatting followed. The prolific Santa Fe Springs Field in California had been discovered in 1919, with Huntington Beach coming into the picture in 1920. In 1921 Signal Hill, Calif., came roaring in and then the rush began. The story of those three California fields, of the mad rush to get wells down, of drills racing each other into the earth literally a few feet apart, of science and conservation wantonly sacrificed for greed and ignorance, is an old one. Huntington Beach, Santa Fe Springs and Signal Hill, together with Burbank and Bristow-Slick, Okla.; Mexia, Tex.; El Dorado, Ark., and Haynesville, La., accounted for the sharp upward slant taken by the United States production line in 1922. The following year increased flow in the California fields, at Tonkawa, Okla., Powell, Tex., and in the famous Smackover Field in Arkansas helped to swell the flood of crude.

Cumulative Effect

"The cumulative effect of these successive oil 'strikes' made itself really felt in 1923 when production in the United States climbed to nearly 750,000,000 bbls., 72 per cent of the world total Mexico, which reached her peak in 1921 with an output of more than 200,000,000 bbls., was now definitely on the down grade and as yet no other country had come forward to take her place.

"To the industry today, saddled with a superabundance of oil lands, oil wells and oil itself, the year 1924 must present a strange retrospect. For in that period, for the first time in 19 years, production in the United States actually went into a decline through natural causes when the California 'big three' and Powell, Tex., hit the downward slope. All four fields had been drilled on a 'get-it-quick-before-the-other-fellow-beats-you-to-it' basis, and California alone dropped 100,000 bbls. a day during the year. Foreign fields showed only a normal increase in 1924, but from that point on the 'river' on the accompanying chart widens out unmistakably.

"What had happened was this:

"When fear of an imminent shortage of raw material sent every geologist into the field on the run to locate more oil, they did not stop at the four boundaries of the United States. So for the next several years groups of American oil men, along with parties from other countries, could be seen cutting their way through tangled jungles and roving over the burning desert, exploring for signs of the precious liquid.

Venezuela—Colombia Gain

"During the middle twenties the fruits of all this exploration began to pour in. In 1925 Venezuela and Colombia more than doubled their output of crude. The following year Colombian production multiplied six times. In 1927 it doubled again.

"It is in 1928, however, that we see the greatest widening between the banks of our 'river.'

"Genuinely alarmed by now at the rising torrent of oil that poured in from flush fields in Oklahoma, West Texas and elsewhere during 1927, piling up surplus stocks at a rate which spelled certain disaster for the industry, oil men began to consider in earnest ways and means of holding production in line. So effective was the proration program, combined with the big slump in the great Seminole area, that the end of 1928 actually saw American output reduced by 17,739,000 bbls.

"Meantime, what was happening on the other side of the fence?

"Venezuela opened the flood gates of her oil fields and dumped 105,723,000 bbls. into the lap of the world during 1928—67 per cent more than her output the preceding year. On top of that, Russia came through with an increase of 11,000,000, Rumania with 5,000,000, Colombia and Dutch East Indies with a jump of 4,000,000 apiece. Miscellaneous fields contributed 9,500,000 bbls. more than in 1927.

Foreign Production Increases

"What was the result? In a year when production in the United States dropped nearly 18,000,000 bbls., foreign production increased over 64,000,000 bbls.

"In 1929 the flow from foreign wells climbed 62,500,000 bbls. higher on the scale, but this time they were more than matched by the United States, where flush fields in California came flooding in during the summer months, drowning the country in over 1,000,000,000 bbls. of crude—113,000,000 bbls. higher than the 1928 output.

"The present year has seen a definite improvement in the situation thus far, as indicated by the downward slant of the lines on the chart. Generally speaking, reductions in producing operations have been sharper in the United States than abroad, and again there is a widening of our figurative 'river.' The total amount of oil taken from wells here during the first six months of 1930 is estimated at close to 470,000,000 bbls.—64.5 per cent of the estimated world figure.

"The fact that world production has not declined in the same proportion is partly explained by the increase in Russian oil. Nearly 61,000,000 bbls. are estimated as the output of crude from that country for the first half of the year—more than 8 per cent of the world total.

Shut-in Production

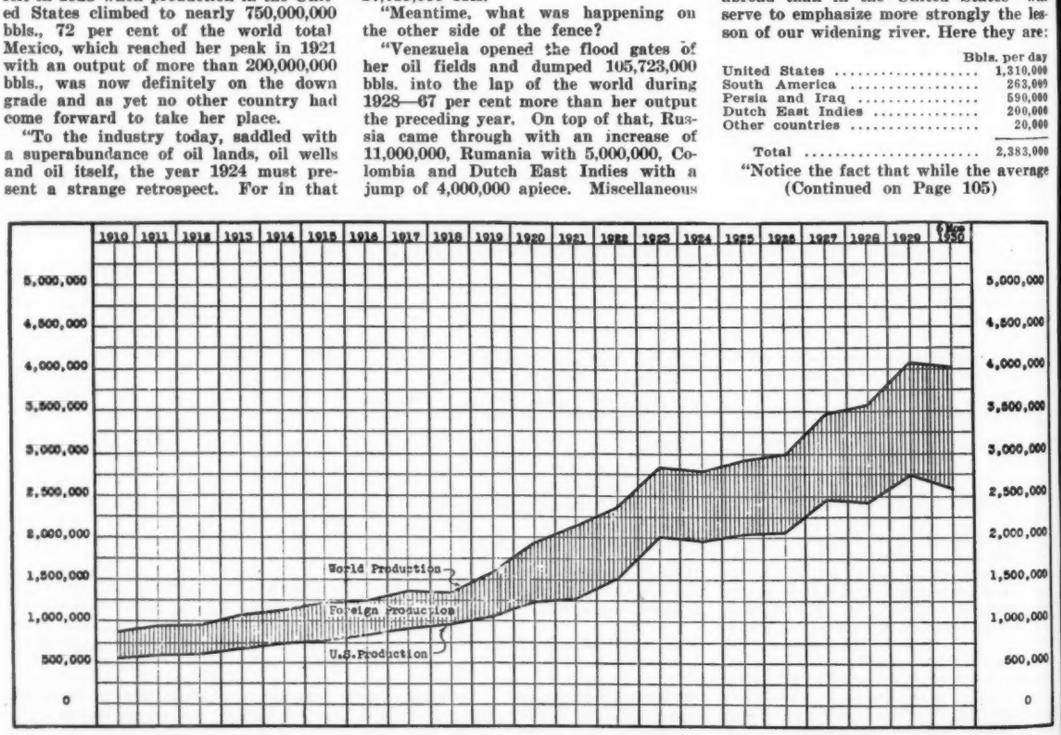
"Much of the conspicuous success which the petroleum geologist has enjoyed in recent years has been traceable to his ability to supplement surface observations with surprisingly accurate measurements of subsurface structure.

"The producer might do worse than to take a leaf from his book. In this case, just a glance at the shut-in production among the important oil countries of the world of known fields alone—and there are presumably more undiscovered areas abroad than in the United States—will serve to emphasize more strongly the lesson of our widening river. Here they are:

	Bbls. per day
United States	1,310,000
South America	263,000
Persia and Iraq	590,000
Dutch East Indies	200,000
Other countries	20,000
Total	2,383,000

"Notice the fact that while the average

(Continued on Page 105)



For convenience, figures shown on this chart represent average barrels per day.

A 20-year record of world production. Nature has yielded the staggering total of 18,655,635,000 bbls. to the oil man's drill during that period, with United States production 12,247,835,000 bbls., or 66 per cent. The world output of crude multiplied 3½ times in those two decades. Notice how the shaded "river," representing foreign production, has broadened in recent years.

Some Deep Well Production Problems

Air-Gas Lift, Various Types of Pumps and Different Methods Being Tried. Experience Gained at Seminole Is Helpful

By L. G. E. Bignell
Petroleum Engineering Editor

The practice of drilling wells to depths greater than 6,000 feet presents the question: "How will such wells be produced when the reservoir pressure declines so low that they will no longer flow naturally?" A number of ideas have been advanced as to how such deep production could be handled and there are ample data available covering gas-lift operations from wells 4,200 to 4,500 feet deep. This has proven valuable in pointing the way to the solution of the deep well production problems.

California led the way in drilling deep wells but there the wells flowed naturally and as the sand bodies were depleted of oil and gas and production dropped the wells were deepened into the still lower zones of production and they continued to flow by natural means.

In Big Lake Field, Texas, there are several wells drilled to below 8,500 feet depth that have flowed steadily without the use of artificial means. There is under consideration a plan to tube these wells but all the interests involved are not in accord as to how tubing would affect the flow of oil from the deep producing sands. It is known that the gas-oil ratio is high compared with other fields and it is an engineering problem to recommend proper size tubing string and method of running it so that the wells which have cost upward of $200,000 to drill will not be hurt.

In Logan County, Oklahoma, wells have been drilled below the 6,000-foot depth for some time and when their natural flow ceased several of them were put upon the pump. For pumping the regular type walking beam outfit was used with long stroke crank and this has given good results thus far. It is stated that most of these wells still produce considerable formation gas and that the pumps are acting more as agitators than for the purpose of lifting the oil the full length of the tubing, but whatever may be the motive force the fact is established that these wells can be pumped successfully with regular type pumping equipment.

Oklahoma City Field

One of the first questions asked about the Oklahoma City Field when it was proven that it would be of considerable importance concerned production methods when natural flow ceased. These questions took every form from desire to know what type of prime movers would be used in this work and the horsepower that would be required to get the oil from this great depth, down to discussions of the various known means of lifting oil mechanically. And this discussion still continues although about 50 wells have actually been put on the gas lift in one form or another and some data are available.

Because of the fact that proration has seriously affected the time available for testing gas lift plants the data now at hand are rather meagre but the production engineer familiar with Seminole practice has found that facts developed in that older field are applicable to Oklahoma City even though there is approximately 2,300 feet more lift in the new pool.

The accompanying map shows approximately all wells that are now on air lift in the Oklahoma City Pool and it will be noted that all but seven of them are in the Arbuckle limestone area where the fluid level is high.

Wells Tubed to Aid Flowing

Before the wells were put on air lift, even in an experimental way, several of them were tubed to increase the flow which had fallen off due to lowering of formation pressure in parts of the field and wells handled in this way responded nicely and many of them are still flowing through tubing.

Two wells located just at the south edge of the lime production area and just west of the fault have been tubed as follows:

Well A.	1,957 feet of	2½" tubing
	3,477 feet of	3" tubing
	874 feet of	4" tubing
	6,308 feet in tapered string.	
Well B.	487 feet of	2½" tubing
	3,000 feet of	3" tubing
	2,947 feet of	4" tubing
	6,434 feet in tapered string.	

These wells are producing naturally through these tapered strings of tubing which it will be noted are quite different in their proportions of sizes, and Well A is making from 1,200 to 1,300 bbls. of oil per day with about 1,200,000 feet of gas and no water. Well B makes about 1,500 bbls. of oil and 1,000 bbls. of water with 2,250,000 feet of gas daily.

Prior to tubing Well B it was making between 4,000,000 and 5,000,000 feet of gas per day with no appreciable increase in the amount of fluid handled.

It is not known how many wells are flowing through tubing at this time under natural pressure conditions, for under proration conditions, as they exist in Oklahoma City, the field men have been kept busy with other details than making surveys of wells, and only report the production method for the individual well on each daily report as the well is permitted to flow, so a compilation of flow methods of all wells is not available.

Flow by Natural Pressure Gas

Because of the fact that the original rock pressure in the Oklahoma City wells was upward of 2,000 pounds per square inch it occurred to some operators early in the life of the field that this high pressure gas that was produced almost exclusively by some wells could be used to flow other wells that were making fluid.

Some experiments were carried on along these lines and on the Kinter lease of the Sinclair Oil & Gas Co. well No. 2 having a pressure of about 1,600 pounds at the casinghead was produced through very high pressure Smith separators and the gas from the separators, still at over 1,000 pounds pressure, was sent to well No. 4 on the same lease to flow it.

The first test was made last spring at a time when the regular proration period for that well had about expired and as No. 4 well being charged with this high pressure gas had a high fluid level and the amount of gas used was excessive, the only results obtained was the discharge of about 60 bbls. of fluid, a mixture of oil and water, into the separator at No. 4 well and then for the balance of the test period only gas with some misted fluid was produced.

Other tests made later indicated that this condition could be remedied but in the meantime the gas had become quite valuable as fuel for boilers on drilling wells and was used for that purpose rather than to attempt to flow wells with it.

At the north end of the field Mid-Kansas Oil & Gas Co. first installed compressors of the 2-stage type on its Fordson lease and attempted to flow two of its wells by the gas-lift method.

It was found in this experiment that one of the two wells under test had considerable formation gas accompanying the fluid and was not hard to kick off or flow, but the other with a very small amount of gas accompanying the fluid required higher pressures to kick off and more gas to flow it.

Since that experiment the Mid-Kansas Oil & Gas Co. has been securing about 27,000,000 feet of gas per day from No. 2 Fordson at a pressure of about 1,500 pounds per square inch at the casinghead and has used part of this to flow wells Nos. 1, 3, 4 and 5 on the same lease.

This dry gas is not passed through an oil and gas separator but is led direct to the well to be produced and by the use of pressure regulators the gas pressure is reduced to that required for flowing the particular well.

The fluid level in these wells is high, being within 1,000 to 1,500 feet of the surface, and it is their practice to run about 3,000 feet of 2½-inch tubing in the 6⅝-inch outside diameter casing in each oil well. The kickoff pressure is between 800 and 1,000 pounds but this drops to about 500 pounds as soon as the flow is started.

This is an interesting experiment for it was found that No. 2 Fordson was not a commercial producer when drilled to about 6,600 feet total depth, so it was plugged back to about 6,200 feet and then the 6⅝-inch casing shot about 50 feet above the plug, or at a total depth of 6,150 feet, from which depth the high pressure gas is produced. This gas area is just above the top of the Arbuckle lime formation.

These wells make from 85 to 95 per cent water as they are producing from the Arbuckle lime formation and wells in that lime area are making large quantities of water. The handling of this brine is one of the problems confronting the production engineers in the Oklahoma City Field today.

Gas-lift Wells Increasing

Anticipating the decline of pressure in wells producing from the limestone formation many of the companies operating in that zone installed compressor plants, many of them moved from Seminole district, several months ago and at this time there are over 100 compressors installed in the Oklahoma City Field for gas-lift purposes. A few of them are three-stage and good for developing upward of 2,000 pounds working pressures. Most of them are of the two-stage type common to Seminole area and good for about 500 pounds working pressures although many of them are not suited for more than 300 pounds working pressures but have been operated under higher pressures because of the short run periods set up by proration.

The Indian Territory Illuminating Oil Co., the largest operator in this field, has pioneered to some extent in this gas-lift work and has about 25 wells now ready to produce by this system. Of these wells all but six are in the lime area of production.

It is interesting to note that both lime wells with high fluid levels and sand

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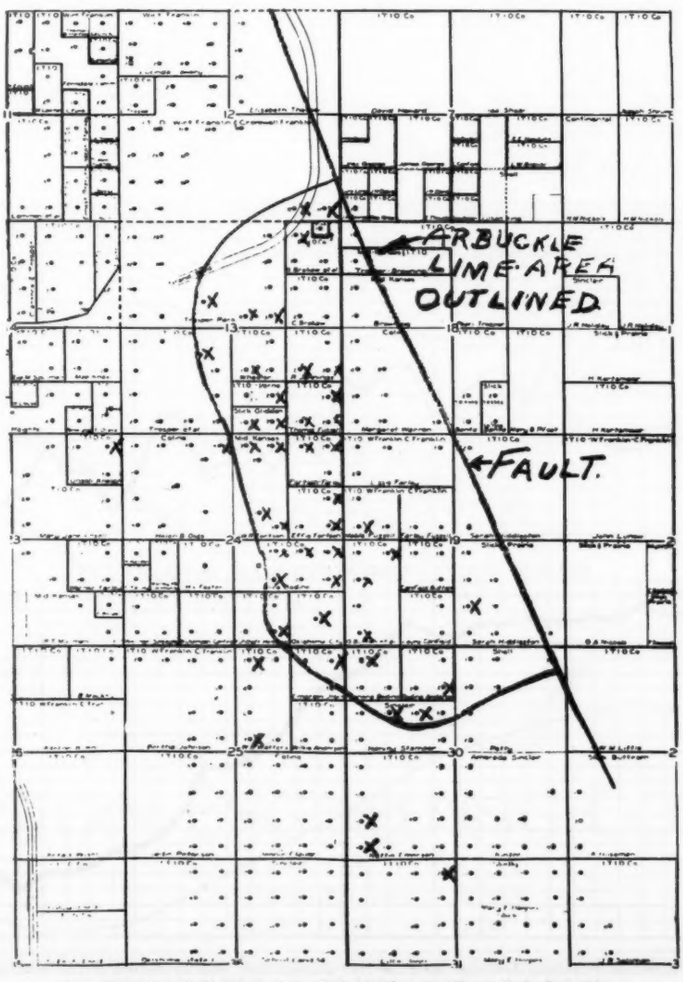


Map of portion of Oklahoma City Pool showing gas-lift wells indicated by x.

Reversal of Normal Water Invasion

McKittrick Field in California Shows Oil Curve Remarkably Flat and Water Curve in Continuous Decline

By Joseph Jensen[1] and J. B. Stevens[2]*

The history of the normal oil field is supposed to show an oil graph starting high in flush production, descending more or less steeply into the curve of settled production and dropping gradually to the vanishing point of economical operation. Together with this, at somewhere in the early history of the field, there appears from a vanishing point, a graph showing the production of water. During the period of settled production, this graph rises higher and toward the close, unless extensive work is done in the line of correction, rises far above the oil graph to where the cost of operation terminates profitable pumping. Fields that start out with a high relative content of water are generally very short lived. Fields that never develop a water problem are exceedingly rare.

The McKittrick oil field, Kern County, California, with 840 acres of proven ground, 300 wells and a present recovery per acre of 94,598 bbls. from 1898 to August 1, 1930, presents a study which is an apparent reversal of the normal history. Though the history of the field now covers over 30 years of operation, it is still too early and the conditions too unique to project the graph of production to completion. The present conditions and directions of change are most interesting, in that the curve of oil production is remarkably flat and the curve of water invasion, after reaching an appalling height, has shown a definite reversal and a continued decline for 10 years.

Early drilling in the McKittrick Field was in or prior to 1898. Development continued steadily to 1918 when the present limitations of the field were determined. Shut-offs, according to accepted practice of the time were made by driving the shoe into a shale stratum or into a tamped-in bridge of sand, rosin and clay.

Records of early days speak of three waters. (1) Surface water which was fresh; (2) an intermediate sulphur water, encountered below the top oil or tar sand; (3) bottom salt water. In different portions of the field, any one of these waters let into a well by faulty completion might require immediate correction to obtain satisfactory production. In many wells, however, the effect of faulty completion was delayed by high initial oil production and became evident only as the well approached the stage of settled production.

Source of Water

As the McKittrick Field is situated in a very arid portion of the San Joaquin Valley, the fresh water was undoubtedly supplied from Santa Maria Basin which lies about 1 mile southwest of the oil field and at about 500 feet higher elevation. The basin, 2 by 4 miles in extent, gathered and held the run-off of approximately 15 square miles of the adjacent Temblor range. The lower lip of the valley spilled its overflow in a large spring, which flowing down a canyon, crossed diagonally the northwest, widest and most productive portion of the oil field, with abundant opportunity for this seepage water to enter the open porous measures overlying the oil sands.

The intermediate water over a longer, more indirect route, undoubtedly came from some similar source. This water never developed the head or volume of either of the other two waters.

Bottom water, drilled into the lower portion of the field, would flow at a rate from 500 to 1,000 bbls. daily. In other portions of the field, it was a high head water of apparently inexhaustible volume. This head may have in part been due to associated gas in the oil zone and the water sand. With the loss of gas, the head was bound to change.

The McKittrick oil field structurally is an accumulation largely, if not entirely, against overthrust faulting in which thrusting from the southwest has caused older measures, across a shear

(Continued on Page 107)

*Before Pacific Coast meeting, Petroleum Division, A.I.M.E., Los Angeles, Calif., October, 1930. Copyright 1930 by A.I.M.E., Inc. Published by permission of J. H. Jenkins, general manager of production division, Associated Oil Co., San Francisco.

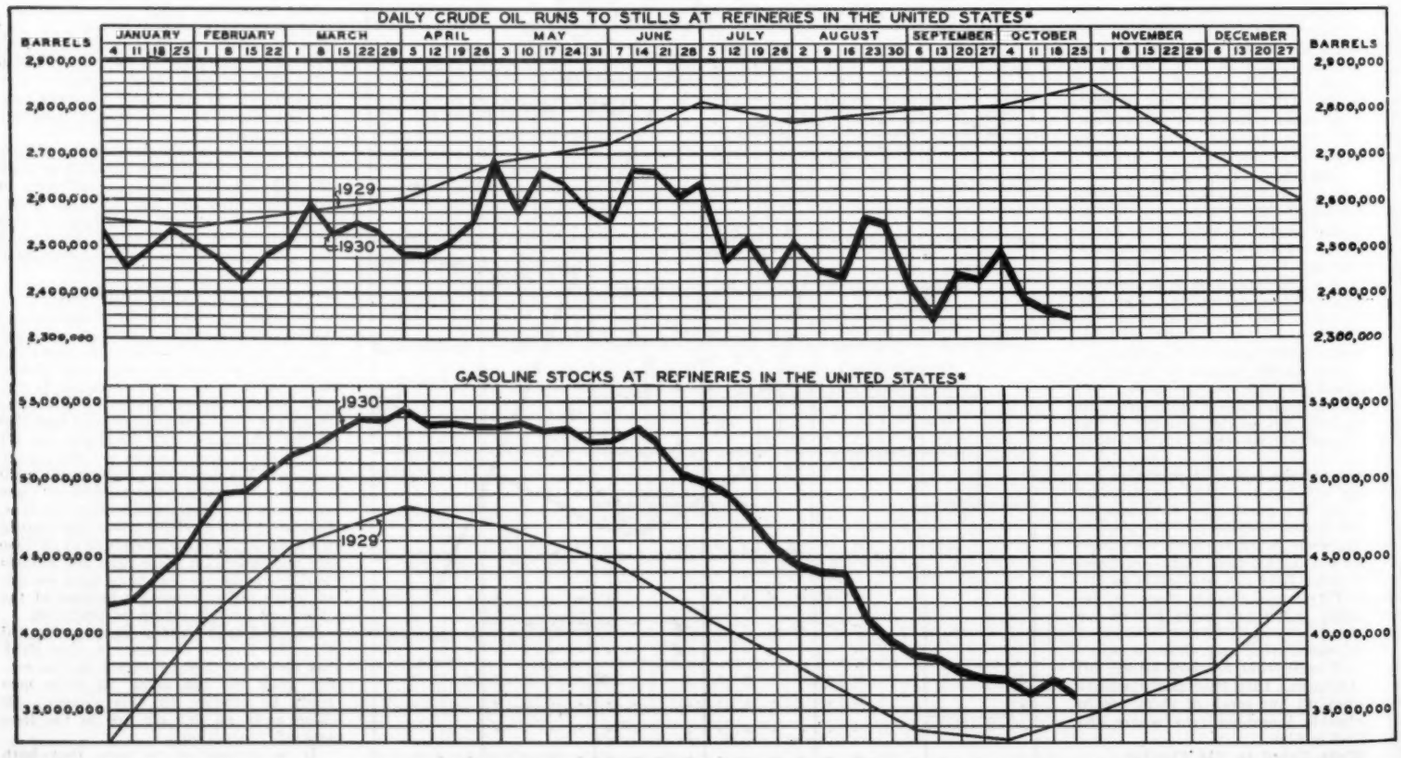
[1]Chief petroleum engineer, Associated Oil Co., Los Angeles.
[2]Petroleum engineer, Associated Oil Co., Fellows, Calif.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

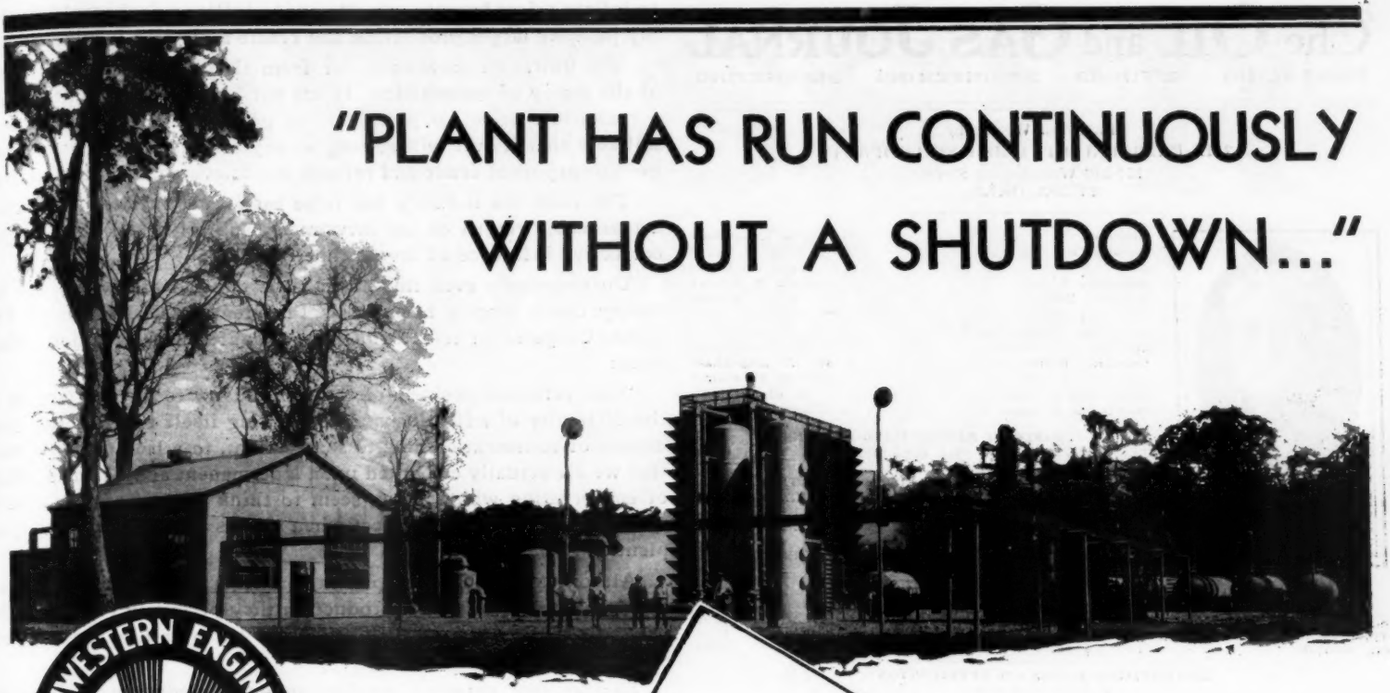
The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending October 25.

	Week ending October 25				Week ending October 18				Week ending January 4			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	474,600	5,702,000	11,937,000	100.0	497,600	5,519,000	11,974,000	100 0	454,857	5,998,000	7,431,000
Appalachian	93.2	75,700	829,000	1,018,000	93.2	75,000	879,000	983,000	91.6	75,571	1,282,000	805,000
Indiana, Illinois, Kentucky	97.5	258,100	4,916,000	4,141,000	97.5	254,100	5,140,000	4,207,000	98.6	289,800	5,483,000	3,505,000
Oklahoma, Kansas, Missouri	89.4	255,300	2,434,000	4,691,000	89.4	249,000	2,438,000	4,858,000	87.7	263,428	3,604,000	3,277,000
Texas	91.9	525,000	6,196,000	10,479,000	91.9	566,000	5,739,000	10,563,000	90.7	539,857	6,590,000	13,757,000
Louisiana and Arkansas	98 3	165,900	1,010,000	2,206,000	98.3	159,400	1,142,000	2,064,000	96.8	160,000	2,161,000	4,499,000
Rocky Mountain	93.1	50,400	1,648,000	1,081,000	93.1	50,900	1,698,000	1,128,000	93.3	41,614	2,273,000	973,000
California	98.3	537,400	13,920,000	103,914,000	98.3	508,400	13,721,000	104,258,000	99.3	642,857	14,826,000	109,770,000
Total United States	95.6	2,342,400	36,655,000	139,467,000	95.6	2,360,400	36,276,000	140,035,000	95.4	2,468,285	42,217,000	144,017,000
Texas Gulf Coast	100.0	389,400	4,992,000	7,654,000	100.0	422,300	4,597,000	7,677,000	100.0	429,585	5,579,000	10,792,000
Louisiana Gulf Coast	100.0	107,100	772,000	1,310,000	100.0	97,900	915,000	1,261,000	100.0	108,514	1,877,000	3,818,000

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.



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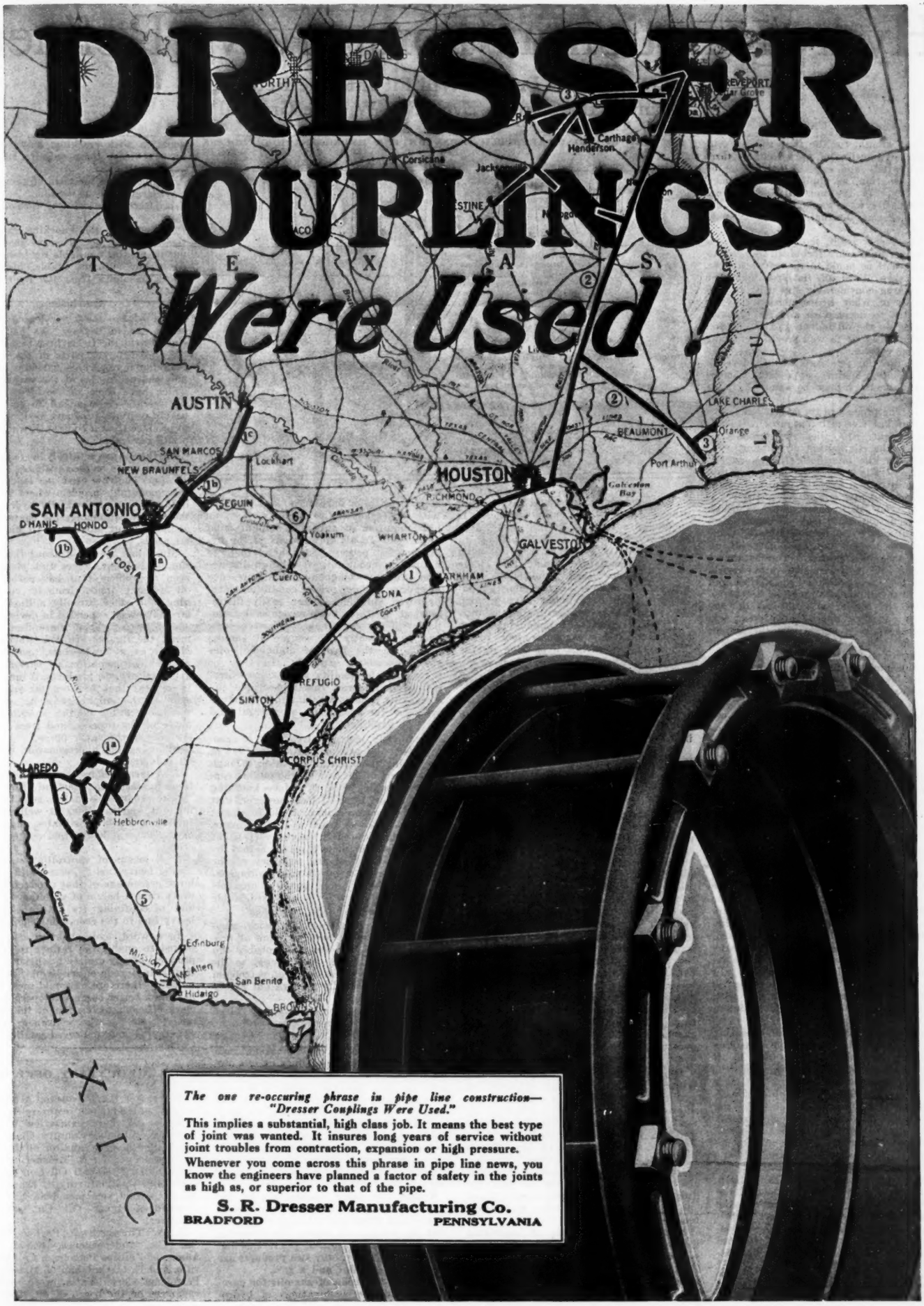

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Hydrogenation in Tomorrow's Refinery

How the New Process Will Fit Into the Refining Plant of the Future. Evolution Will Be Gradual*

Last month, for the first time, a comprehensive outline of the results of three years' study and experimentation on oil hydrogenation, as applied on a commercial scale in the new 5,000-bbl. hydro plant at Bayway, was made public. (The Oil and Gas Journal, October 2, page 218).

The report itself, naturally enough, is detailed and highly technical, and no attempt will be made to reproduce it here. But taken all in all, its effect has been to enlarge considerably the popular conception of what hydrogenation may be expected to accomplish and its probable bearing on the oil industry of the future. Consequently, it is well worth analyzing in simple form.

By far the two outstanding developments not generally appreciated before by the industry may be summed up as follows:

1. The process in its present stage has not one but five different uses, with one that might be called "by product"—namely, the elimination of sulphur.

2. For the immediate future, as has been generally understood, hydrogenation will constitute a third basic process, with straight run and cracking, for the refining of crude oil in those plants in which hydrogenation units may be constructed. But ultimately, so flexible has the process been proven, the up-to-date oil refinery may be expected to consist almost entirely of hydrogenation units—with, of course, such additional distillation and auxiliary equipment as may be necessary.

The five major adaptations of the process, as they appear at present, are summed up in a nutshell in the accompanying table. Each embodies several interesting points.

SUMMARY OF PRINCIPAL APPLICATIONS OF THE HYDROGENATION PROCESS

Nature of charging stock—	Primary results	Approximate volumetric yield of— Gasoline	Burning oil	Gas oil	Lub oil	Total volumetric yield
High sulphur, asphaltic heavy residue	Asphalt and sulphur elimination with simultaneous conversion of entire charge into distillate oils...	30%	....	71%	....	101%
Low grade lubricating distillate	Production of premium lubricants, particularly as regards temperature-viscosity relationship, flash, carbon and gravity..	10%	....	29%	65%	104%
Low grade burning oil distillate	Production of low-sulphur, premium grade burning oil ...	30%	73%	....	....	103%
Cracked naphtha	Desulphurization and gum stabilization without the deterioration in yield and knock rating characteristic of acid treating	100%	....	....	....	100%
Paraffinic gas oil	Production of low-sulphur, low gum, good antiknock gasoline	65–100%	....	....	....	70–100%

Crude and residues to gasoline: This is the best-known and most widely discussed application of the process thus far. As a charging stock, heavy asphaltic high-sulphur crudes or residues may be used, and the primary results, as shown in the table, are 30 per cent gasoline and 71 per cent gas oil—the extra one per cent being accounted for by the addition of hydrogen. The gas oil may, of course, be again hydrogenated, if desired, until all of the original batch is converted into gasoline. As a matter of fact, however, the present application of this phase of the process will probably be something like this:

First, the charging stock will be hydrogenated, as described above, with a comparatively small yield of gasoline and the rest gas oil. The latter then may be either cracked in existing cracking equipment or converted into good knock rating naphtha by hydrogenation. If cracked, the tar may be used or sold as heavy fuel. Or a part or all of it may be returned to the hydrogenation plant. In this way the greatest use of existing refinery facilities may be obtained with maximum gasoline yield and minimum hydrogen consumption.

Depending on the stock and operating conditions, 80 to 90 per cent gasoline yield may be had in this manner. If all of the cracking plant tar is hydrogenated, the total gasoline yield will approximate 100 per cent. The chief value of this application of the process lies in the fact that it is possible to utilize stocks practically unworkable by existing methods. Furthermore, from even highly asphaltic, high sulphur oils a low sulphur, gum stable gasoline is produced.

Improving low quality lubricants: Surprising as it may seem, in view of the generally high grade of lubricants on the market today, the really "perfect" lubricating oil for use in the internal combustion engine has not yet been produced under present refining methods. This requires some explanation.

The ideal motor oil should have, among others, these three characteristics. It should have what is known as a "flat" temperature-viscosity relationship. In other words, it should show a minimum change in consistency under the widely varying temperature conditions under which the modern internal combustion engine operates. It should have a high flashpoint, to prevent ignition at the searing temperatures accompanying high speeds, and a low carbon content, to insure minimum carbon deposition on the combustion surfaces and elsewhere in the motor.

As might be expected, lubricants refined from one grade of crude show up best in one characteristic, while oils from another field yield a lubricant superior in another. But no single motor oil has yet been manufactured which will combine all these characteristics to the highest degree, no matter from what crude or combination of crudes it may have been refined.

This does not mean that present motor oils are not satisfactory in every way for present day internal combustion engines. Continued advancements in internal combustion engine design, particularly in airplanes, are requiring the oil industry constantly to improve its products by every means at its command in order to keep pace with higher speeds and more efficient, higher compression, multicylinder motors. With the aid of hydrogenation it is possible to produce a quality of lubricating oil combining these three characteristics to a degree not reached by existing refining methods. Hydrogenated lubricating oils are characterized by a high temperature-viscosity relationship. That is, they show a minimum change in viscosity with changes in temperature. They also have a very low carbonizing tendency for a given body.

Burning oils: As with poor quality lubricating distillates, high sulphur, low gravity, off color kerosene distillates and inferior light gas oils may likewise be improved by hydrogenation. The results are high yields of water-white distillates and burning oils of high quality. Generally speaking, only slight treatment other than reduction to the proper viscosity and flashpoint is necessary for these hydrogenated products to meet specifications as to sulphur content, color and smoke tendency.

Under present methods of improving low grade kerosene distillates, such as solvent extraction, the undesirable constituents are separated out. With hydrogenation, these undesirables are in effect reconstructed, so that the entire finished stock consists of burning oil and gasoline, with no degradation of products.

Elimination of gum and sulphur from naphthas: In all applications of the hydrogenation process listed here, there is natural tendency toward sulphur elimination. Sulphur compounds, in the presence of hydrogen under proper conditions, form hydrogen sulphide—a gas easily distinguished by the all-too-recognizable similarity of its odor to that of rotton eggs, and consequently the source of endless pranks on the part of diabolically inclined chemistry students. In view of the remarkable facility with which hydrogenation eliminates this undesirable element, this process was intensively developed for the treatment of natural and cracked naphthas.

Ordinarily, chemical treatment of gasolines for sulphur removal has the effect of decreasing their antiknock value through the conversion of some of the olefine constituents which tend to reduce knocking in the motor. It was found, however, that by hydrogenation sulphur could be almost entirely removed from a high sulphur, cracked naphtha with only a very slight increase, and in some cases an actual decrease, in the knocking tendency of the resulting product. By a mild hydrogenation, high sulphur, high gum and unstable gasoline may likewise be rendered stable and practically gum free.

Production of stable, low-knock gasolines: Along with the production of premium quality lubricants, probably no other application of the process so directly affects the consumer of petroleum products as its ability to turn out highly antiknock gasolines.

This application of the process gives perhaps the best idea of its flexibility, and in this way.

Some products of hydrogenation, such as certain lubricants and burning oils, are highly paraffinic. Antiknock gasoline is not. Yet it is possible to take a gas oil, for example, as a charging stock and run it to produce a high gravity, paraffin burning oil—then, without stopping operations and merely by changing conditions, to switch to an output of stable, low sulphur, low knock rating, nonparaffinic gasoline from the same identical charging stock.

Unlike the other adaptations of the process already described, the production of gasoline from gas oil is not 100 per cent by volume — unless the knocking tendency of the resulting product is immaterial. However, only two products are obtainable—gasoline and a gas.

The hydrogenation of gas oils for gasoline, or various combinations of hydrogenation with cracking, may be seen to have at least three definite advantages, as follows:

a. Increasing the yield of gasoline from the charging stocks used.

b. Decrease in refinery fuel oil production.

c. Bettering the knocking characteristics of the refinery's entire gasoline output by making available for blending purposes low sulphur, stable, highly antiknock gasolines from the hydrogenation plant.

Conclusions

One of the most perplexing problems which the oil refiner has had to face since producing fields first began to multiply in different parts of the globe has been the innumerable varieties and complex characteristics of the various crudes which have come to him from all over the world. He has had to turn out as nearly uniform products as it is possible to produce from a constantly varying supply of raw material.

In the future a highly asphaltic, high sulphur crude with an almost negligible gasoline content need no longer be an insurmountable problem where motor fuel is the product desired. By hydrogenation the refiner can change the characteristics of his working stocks to suit his particular needs.

Much has been said about the elimination of sulphur. Since this element has been a problem that has perplexed the oil industry almost from its very beginning, and since literally millions of dollars have been expended in devising methods of getting rid of the undesirable element, the figures are well worth giving. Merely as a "by-product," so to speak, in the hydrogenation of various crudes and intermediate products, it may be said in general that between 60 and 75 per cent of the sulphur can be eliminated when operating in the so-called liquid phase of the process, and from 80 to 90 per cent in the vapor phase.

Summing up, hydrogenation offers the oil industry.

1. A means of balancing crude production against the demand for refined "white products"—that is, gasoline, burning oils and the like, as well as Diesel fuels and similar distillates, independent of the natural heavy fuel content of the crude.

2. A means of controlling its production of heavy fuel oil, created through the large percentage of that product left over every time a barrel of gasoline is refined, and of confining its future supply of heavy fuel to the economic demand.

In a word, hydrogenation may be expected to enable the refiner to turn out products of any desired quality from practically any grade of crude oil. For the oil industry, therefore, it would seem to have in store a better balance in operations and more efficient utilization of its raw material, and for the consumer, a more varied line and improved quality of petroleum products.

*Note—From The Lamp, house organ of Standard Oil Co. of New Jersey.

OIL ACCOUNTANT OFFICIALS

Officers of the Petroleum Accountants Society of Oklahoma were re-elected at a dinner of the organization Thursday night at the Tulsa Country Club. They are A. B. Chesebro, auditor of Carter Oil Co., president; L. B. Messner, chief accountant of Barnsdall Oil Co., first vice president; C. E. Murray of Empire companies, second vice president, and D. B. Caterlin of Gypsy Oil Co., secretary-treasurer.

E. A. Titsworth of Prairie Oil and Gas Co., Independence, Kas.; K. S. Adams of Phillips Petroleum Co., Bartlesville, and E. C. Callahan of Midcontinent Petroleum Corp., Tulsa, were named to vacancies on the board of directors.

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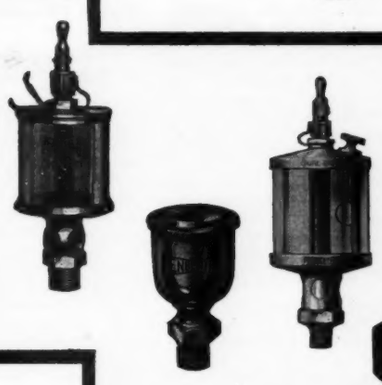

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TEXAS I. P. A. HOLDS SEMI-ANNUAL MEETING

SAN ANTONIO, Tex., Oct. 27.—Tom Cranfill, presiding as president of the Independent Petroleum Association of Texas, at the semiannual convention today, announced that the directors of the association had decided to go down the line and see whether the new pipe line common purchaser law gave the independents what they were looking for and expected it to give. Other than a paper read by David Donoghue of Fort Worth, technical advisor to the state proration committee on the operation of statewide proration, the program during the two sessions Monday in the Plaza Hotel ballroom were largely roundtable discussions. About 200 oil men from all over Texas are in attendance.

Claud Wilde announced that at the meeting of the directors of the association today it was decided to appoint committees to investigate the whole question of pipe lines, a committee to study and report on the matter of royalties, one on co-operation between producer and refiner, one to study crude marketing and one to study the tariff question.

It was brought out in the discussions in the afternoon from questions asked by Judge Parker of the oil and gas division that pipe line companies file their tariff rates with the railroad commission and unless there is a protest against the rate filed it stands as the rate in force and effect. Thus far there has been but one protest filed against a rate and it was in the case of a small and unimportant line. On motion of Walter Campbell, of Wichita Falls, the association voted to appoint a committee to investigate the whole question of pipe line rates.

Harry Pennington called attention to the fact that profits are in decimals and said that to produce at a profit was more and more an engineering problem. He said a course in production engineering had been established at A. and M. College and now had 200 students in it and with no funds to operate. On his motion the association adopted a resolution calling on the legislature to provide adequately for such courses in all state institutions since the State derives its biggest revenue from oil.

OIL MAN'S CALENDAR

OCTOBER

29-31 — Lawrenceville, Kans., celebration twenty-fifth anniversary, Lawrence County Oil Industry.

31—Independence, Kans., Kansas-Oklahoma Chapter, Petroleum Safety Council.

NOVEMBER

2-5—St. Louis, Mo., Marketing Congress, Independent Oil Men of America, Statler Hotel.

6-11—Berlin, Germany, International Automobile Show.

10-13—Chicago, eleventh annual meeting, American Petroleum Institute, Stevens Hotel.

12—New York, Oil Trades Association of New York, Roosevelt Hotel.

13-14 — Chicago, American Oil Chemist's Society, Congress Hall.

DECEMBER

1-5—Memphis, Tenn., ninth annual Asphalt Paving Conference, the Asphalt Institute and Association of Asphalt Paving Technologists.

2-4—Omaha, Neb., convention, Nebraska Independent Oil Men's Association, Paxton Hotel.

3-4—Indianapolis, Ind., Indiana Petroleum Association, Hotel Severin.

8—New Orleans, La., American Institute of Chemical Engineers.

JANUARY

3-10—New York, National Automobile Show.

24-31—Chicago, National Automobile Show.

FEBRUARY

16-21 — San Francisco, Calif., National Western Metal Congress and Exposition.

OKLAHOMA PRORATION CONTINUED UNTIL JAN. 1

OKLAHOMA CITY, Okla., Oct. 28.—The State Corporation Commission today issued a proration order covering all of the flush oil fields of Oklahoma and many of the older fields, which is to be in effect until January 1, 1931. The new order fixed the State allowable flow at 550,000 bbls. daily during October; 545,000 bbls. daily during November and 535,000 bbls. daily during December. Fields were divided into eight groups, Class A covering wells having a daily production of 5 bbls. or more. Class A wells will be prorated 50 per cent for all over 5 bbls. a day they flow on an average.

Late Fields

GULF COAST

HOUSTON, Tex., Oct. 28.—The second good producer within a week at Black Bayou, Cameron Parish, Louisiana, was completed late Monday in Shell Petroleum Corp.'s No. 15 Watkins, flowing 1,200 bbls. of pipe line oil daily from sand at a total depth of 4,402 feet. One joint of screen was set in the sand. Production is through tubing and a three-eighths-inch choke and gravity of the oil is 26 degrees with temperature of the well 96 degrees, pressure 445 pounds. This well is on the south side of the dome and is the shallowest of the deep producers, this being the fourth. This company's No. 1 State completed late last week, Tuesday was holding up its flow at 799 bbls. through a five-sixteenths inch choke.

Union Sulphur Co.'s No. 2 H. J. Moss, west extension district of the Lockport Field, Calcasieu Parish, which was completed late last week making an estimated 5,000,000 feet of dry gas later started spraying oil and Tuesday was flowing 700 bbls. daily. This is from sand at 5,296-5,307 feet. Union Sulphur Co.'s No. 762 fee, Sulphur, Calcasieu Parish, has been completed flowing 800 bbls. of fluid, 5 per cent water, from sand at 4,787 feet.

OKLAHOMA

The total production from the Oklahoma City Field for the week ending October 25, was 577,662 bbls., a decrease of 41,602 bbls. compared to the previous week when the production was 619,264 bbls. A large number of wells in the field are under-produced due to the lack of storage facilities.

The discovery well in the Oklahoma City Pool, Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE, Section 24-11-3w, which has been dead for several months, was opened again October 28 and made 75 bbls. of oil and 1,560 bbls. of water on the air-gas lift, in 24 hours.

Tom Slick Oil Co. and others' No. 1 Clegg, in Section 2-11-3w, Oklahoma City Pool, flowed 378 bbls. in 1½ hours from sand at 6,244-6,570 feet.

Indian Territory Illuminating Oil Co.'s No. 2 M.K.&T. in Section 35-12-3w, in the north end of the Oklahoma City Pool, made 40 bbls. an hour from sand at 6,200-6,540 feet. The gas was estimated at 75,000,000 feet a day.

In the area southeast of East Earlsboro Pool, Gypsy Oil Co.'s No. 1 Pompey, SW cor. SE NW, Section 29-9-6, flowed 574 bbls. in seven hours from the Wilcox sand on the gauge of October 28. The well is to be shut in for proration.

Amerada Petroleum Corp.'s No. 1 Morris, SE cor. SW NW, Section 29-9-6, is the third well to be completed in the area. The well swabbed 65 bbls. an hour from the Wilcox sand at 4,123-53 feet. It was plugged back to 4,149 feet after finding a showing of water. The second hour it swabbed 45 bbls. The owners believe some of the oil has been plugged off and it may be shot.

Oklahoma City operators decided the question of "what is an oil well and what is a gas well" at a meeting October 28. The operators by agreement passed a resolution recently that all the present gas wells that make gasoline are to be classed as oil wells for the purpose of proration on the time basis. A well may be classed as a gas well if the operator goes before the Oklahoma Corporation Commission and asks that such a well be exempt from the ruling, when the operator desires to use the well as a gas well, for gas purposes only. All operators agreed at the hearing of October 28, when the resolution was fully approved and passed. The Oklahoma Corporation Commission is expected to issue such an order, in due time.

MICHIGAN

MUSKEGON, Mich., Oct. 28.—Daily production of Gibson, Johnson & Borden's No. 1 Peter Mahon, SE SE, Section 24-15n-4w, Isabella Township, Isabella County, nearly doubled from 150 to 275 bbls. as the result of additional drilling over the weekend. At the new rate the well is the second largest ever completed in the Leaton Pool, northwest of the original Mount Pleasant Pool. It was the most important new completion of the past week.

KANSAS

Barnsdall Oil Co.'s No. 1 in the C SW, Section 32-25-17w, Edwards County, had 2,600,000 feet of gas at 4,547 feet, and the gas increased to 7,000,000 at 4,549 feet. The rock pressure was 1,350 pounds. A showing of oil was found at 4,550 feet. The test was drilled to a total depth of 4,563 feet. No increase in the oil or gas. A separator was installed and the oil was not sufficient to make a production test and the well will be drilled deeper. The well extends gas production nearly a mile southwest.

In the same area Dixie Oil Co. and Amerada Petroleum Corp.'s No. 1 McCarty, SW cor. SE, Section 30-25-17w, Edwards County, was drilling at 4,550 feet and was expected to reach the pay sand early in the week. It offsets the discovery well in the area drilled by the British American Oil Co.

Derby Oil Co.'s No. 4 Eastborough, NE cor. NE NW NE, Section 19-27-2, Sedgwick County, had 700 feet of oil in the hole from the chat at 2,960 feet. The 6-inch casing was being landed before drilling deeper.

Reserve Petroleum Co. announces a new location in the Decker gas area in McPherson County. The new test is No. 1 Ritz, SE cor. SW, Section 31-19-1w. The test is being drilled on Shell Petroleum Corp.'s acreage.

The Prairie Oil & Gas Co.'s No. 1 Leiker, in Section 5-16-18w, Rush County wildcat, found the granite at 3,743 feet and will be abandoned. Other tests

(Continued on Page 146)

High Spots in Field News

SOUTHWEST TEXAS
Best Pettus well flows 1,055 bbls.

ROCKY MOUNTAIN AREA
Shell well in Hobbs Pool has potential of 23,911 bbls. Play in Weld County, Colorado, extends 20 miles.

NORTH TEXAS AND PANHANDLE
Western Coleman County well promising.

GULF COAST
Two extensions at Orchard Dome, Fort Bend County.

OKLAHOMA
State production at 537,000 bbls., less than half of potential.

EAST CENTRAL TEXAS
Seven derricks up in Joiner Field, Rusk County. Two good wells in Carroll district.

KANSAS
Eastborough Pool grows more important. New wildcats in east and west sections of State.

NORTH LOUISIANA-ARKANSAS
Smackover extended to southwest. Revival at Champagnolle. Mississippi has twenty-first gas well.

CALIFORNIA
Elwood producer flowing 15,035 bbls., largest in California since 1923. State's potential 1,100,000 bbls. daily.

WEST TEXAS
Western Crane County discovery dropping off. Showings to south and in Ector County. Old McCamey Pool extended. New record at Big Lake.

PRAIRIE-SINCLAIR DEAL

Officials of the Prairie Oil & Gas Co. and of the Prairie Pipe Line Co. are in New York, it is understood in connection with the working out of matters pertaining to the proposed merger of these companies with the Sinclair Consolidated Oil Corp. Some announcement relating to the proposed merger is expected within the near future.

MAGNETIC STORM

The Tucson observatory of the United States Coast & Geodetic Survey reports the beginning of a moderate magnetic storm at 8 a. m. (C.S.T.) October 25 which had not been reported as ending at 5 p. m., October 28. The telegram is as follows:

"Storm began twenty-fifth. Fourteen. Moderate."

SCORE SHEET ON OIL PRODUCTION

Below is shown allotted average daily production in the United States, April to December, inclusive, suggested by the Committee on Economics of the Federal Oil Conservation Board, and the actual daily average production during the week ending October 25:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
California	610,000	593,250	.....	16,750
Oklahoma	655,000	536,845	.....	118,155
Texas	750,000	782,001	32,001	.....
Other fields	480,000	450,742	.....	29,258
Total	2,495,000	2,362,838	32,001	164,163

Daily average net underproduction, 132,162 bbls.

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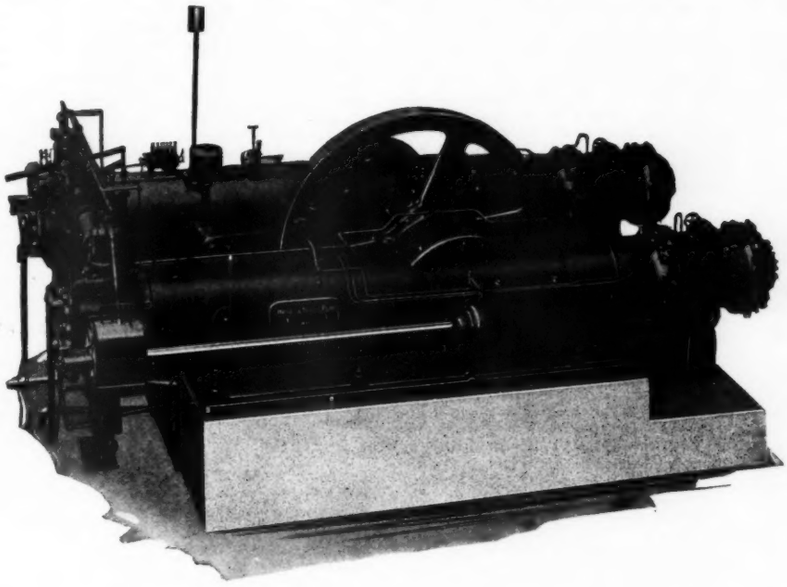

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NEW ORLEANS, LA.
Woodward, Wight & Co.

SALT LAKE CITY, UTAH
F. C. Richmond Machinery Co.

LOS ANGELES
Republic Supply Company of California

BEAUMONT, TEXAS
E. L. Wilson Hardware Company

PHOENIX, ARIZ.
Pratt-Gilbert Co.

ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

Oklahoma Production 537,000 Barrels

Lowest Point Reached in Four Years but It Represents Less Than Half of Potential. Interesting New Wells

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma's estimated production for the week ending October 25 was approximately 537,000 bbls. a day, which is the lowest point production has reached since October 16, 1926. At that time, however, the total production of the State represented all the oil the wells could produce, while at this time it does not represent half the working potential of Oklahoma's wells, but only the permitted production under the orders of the Corporation Commission.

The Deep Rock Oil & Refining Co.'s No. 1 Whitworth, NW cor. SW NE Section 30-8-8, south of Wewoka in Seminole County, was one of the feature wells of the week. It was drilled deeper into the Wilcox sand to a total depth of 3,922 feet, where it flowed 2,517 bbls. in 24 hours. The temperature of the oil was reported to have increased from 85° to 97° after deeper drilling. The well made 2,255 bbls. on the previous day's gauge, from a total depth of 3,915 feet. Usually when the temperature increases it indicates salt water.

Operators having acreage in the new area south of Wewoka were starting several new tests notwithstanding the increase in temperature in the discovery well.

Sinclair Oil & Gas Co. has purchased three tracts of 2½ acres each, in the Rock Road addition of Wewoka, north of the discovery well. The consideration was not reported. The Sinclair company is the only major oil company that has purchased acreage in the vicinity as the result of the new well. It is the first Wilcox sand discovery on the east side of the county. The town lots inside of the city limits may be leased and a town lot drilling campaign may result.

The Deep Rock Oil & Refining Co. has announced three new locations to the well, No. 2 Smith, SW cor. NW NE Section 30-8-8, on a 20-acre tract, No. 2 Douglas, SW cor. NE Section 30-8-8, and No. 1 Douglas, NE cor. SW Section 30-8-8.

The hearings on the citations against the 61 operators and oil companies operating in different fields in the State has been set for Wednesday, October 29, before the Oklahoma Corporation Commission. Two groups of charges have been filed, one covering the period from July 31 to August 31 and the other from August 31 to September 30. The citations are that companies and independent operators violated the state proration orders by producing wells overtime, and this is regarded as technical violation of Oklahoma Corporation Commission orders. These hearings have been postponed twice because of other matters before the Corporation Commission and the pending of decisions from the state and federal courts.

The Oklahoma City commissioners have granted a permit to drill a test on Block 15 of the Patterson Terrace addition in Section 10-11-3w to the Plains Petroleum Corp. The work of erecting a derrick is expected to start in a few days.

New Wells in Tatums

Five producers were completed in the Tatums Field, Carter County, during the week and the first day hole was found in the new extension. Magnolia Petroleum Co.'s No. 4 Hooks, NE cor. SW SE Section 24-1s-3w, Carter County, flowed 1,250 bbls. the first 24 hours and was the largest completed well. The oil was found in sands from 1,966-2,141 feet. Same company's No. 4 Spigner, NE cor. SE NE Section 24-1s-3w, in the center of the new pool swabbed 220 bbls. in 24 hours from a series of sands at 2,248-2,500 feet. Same company's No. 2 Brady, SE cor. SW Section 13-1s-3w, swabbed 131 bbls in 24 hours, production coming from a series of sands at 2,222-2,508 feet. Carter Oil Co.'s No. 2 Franklin, SW cor. NE NE Section 24-1s-3w, flowed 1,230 bbls. the first 24 hours from sands at 1,871-2,060 feet. Wirt Franklin Petroleum Corp.'s No. 4 Mitchell, NE cor. SE SE Section 24-1s-3w, in the southeast side of the field, flowed 500 bbls. the first 24 hours from sands at 2,279-2,318 feet. The first dry hole in the field is the Magnolia Petroleum Co.'s No. 1 Dickerson, NW cor. NE SE Section 24-1s-3w, which was drilled to a total depth of 4,240 feet missing all the sands. It was plugged back to 2,165 feet and shot at 1,925-75 feet without showing any oil and it may be abandoned.

Big Block in Roger Mills

A huge block of 150,000 acres of leases has been secured in Roger Mills County by R. M. Johnson and J. R. Bunn. The leases are located in the central part of the county and a core drill campaign is expected to start in a few weeks. It is the first large block assembled in the county.

Several months ago the Shell Petroleum Corp. operated three core drills in the western part of Roger Mills County and during the summer Bucy & Stone drilled a wildcat test to 2,245 feet, in Section 23-12-24w, and L. C. Hivick drilled another wildcat in Section 4-11-26w which is shut down at 2,905 feet. Both of these tests failed to find showings of oil or gas in the shallow sands and may be abandoned.

Many operators believed Roger Mills County to be a promising oil and gas territory and interest has been renewed by the finding of gas in Harper County, in a wildcat well, about 60 miles north of Roger Mills County. In Beckham County, the adjoining county of the south, a commercial gas field has been producing for seven years.

Considerable lease buying and royalty transactions have taken place in Roger Mills County, and several years ago a block of leases was taken in the northern part of the county by J. B. A. Robertson but no drilling resulted. At the present time there is no oil or gas production in Roger Mills County and no active drilling wells.

New Pool in Stephens County

L. Sikes and others' No. 2 W. Blake, NE cor. SW, Sec. 16-1s-8w, Stephens County, a twin to an old producer, finds a new pay horizon near the Empire Pool, in southern Oklahoma. The well is estimated to be a 30-bbl. pumper. It is a twin to an old gas well and opens a new producing formation northeast of the Empire Field. The sand was found at 2,145-57 feet. A showing of water and oil was found in the test when the cement plugs were drilled a few weeks ago and the operators drilled about 3 feet deeper into the sand and recemented the casing. A pumping test is to be made. The derrick is to be moved to another location for No. 1 Kirk, NW cor. NE, Section 16-1s-8w, and another test made.

An attempt to extend production in the Comanche Field will be made in F. Jones and others' No. 1 Caraker-Hall, SW cor. NW SE, Section 27-2s-7w, Stephens County. It is two locations east of the recent completion of G. Pace and others' No. 2 Dilley, SW cor. NE SW, Section 27-2s-7w.

Wildcatting in Noble County

The Otoe Indian district in Noble County is expected to undergo a wildcat development campaign. Two new locations have been made and development is to be started in the near future. The gas area near Perry is attracting attention. The territory northeast of Perry, in the Otoe Indian district, will be developed. The first two tests in that area are expected to be the Washoma Petroleum Corp. and others' No. 1 Indian allotment, NE cor., Section 22-22-1, which is still a location, but a rig is expected to be moved in soon. The other is the Prairie Oil & Gas Co. and Washoma Petroleum Corp. and others' No. 1 M. Upperman, SW cor. NW, Section 22-22-1, which is a rig building. Two more offsets are expected to be announced shortly.

Production is holding at steady levels in the Prairie Oil & Gas Co.'s No. 1 Wentz, NW cor. SW, Section 22-22-1, Noble County. The well is producing an average of 110 bbls. a day from the Layton sand at a total depth of 3,380 feet. Several more locations are expected to be announced in the near future and operations started in the territory a few miles south of Perry. The area has proven to be prolific in gas from both the shallow and deep sands.

Oil Showing at 7,173 Feet

The wildcat test of the Empire Oil & Refining Co., No. 1 Bruce, C NE SW Section 12-25-20w, Harper County, found the second showing of oil in the test while it was being cored at 7,173 feet. The casing is to be landed at 7,195 feet and the formation is to be tested. The well is located several miles south and east of the Sinclair Oil & Gas Co.'s No. 1 Howell, in Section 14-26-24w, which is making 15,000,000 feet of gas and 50 bbls. a day of gasoline.

Production from the Eason Oil Co.'s No. 1 Katschor, SW cor NE SW Section 34-17-4w, Logan County, which many believe has opened a new producing area in that county, is declining. The gauge for October 23 was 455 bbls. compared to 680 bbls. the first 24 hours. The test has been producing for about 8 days. The output has shown a gradual decline since completion. The well is producing from the Layton sand at 3,919-42 feet.

In Western Payne County

Operations in the Reiter-Foster Pool in the western part of Payne County, which was unitized, are at a standstill. Production from the wells which are under curtailment orders was as follows: Reiter-Foster Oil Corp. and others' No. 1 Rule, NW cor. NE Section 8-19-1w, is flowing 590 bbls. a day, from the Misener sand at 4,862-64 feet. Same operators' No. 1 Finnell, C NE NW Section 5-19-1w, the discovery well, is flowing at the rate of 290 bbls. a day from a total depth of 4,784 feet in the Misener sand. Same operators No. 1, Watkins, C SW SE Section 5-19-1w, is producing 48 bbls. a day.

The crew on Sinclair Oil & Gas Co.'s No. 1 Stewart, NE cor. SW Section 33-27-16w, Woods County, was attempting to drive a steel plug at 4,935 feet. The first plug landed in the 9-inch casing was blown out by the gas pressure. It is believed the shot placed at 5,100-5,200 feet, damaged the 9-inch casing, allowing the gas to escape. Another shot of 140 quarts will be placed in the test as soon as the plug is seated. A showing of oil was also found in the test, which was probably coming from the 5,400-foot level.

Extension Tests in Greater Seminole

That an attempt to develop a south extension to the St. Louis Pool, Pottawatomie County, in the Greater Seminole Field, is to be made is indicated by the staking of a new location for O. H. Parkening and others' No. 1 Fleet, SE cor. NW, Section 27-7-5. This location was made several months ago but the final arrangements were made only a few days ago. The test is believed to be located on a geological structure worked by geophysical methods. The test is located on the south end of the structure the Pure Oil Co. sought when it recently drilled a test in Section 22-7-5, which resulted in a dry hole.

The West Asher-Wanette area in Pottawatomie County has considerable development work and the recent completions in the field indicate production may extend to the south. The Magnolia Petro-

(Continued on Page 122)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rigging up standard tools 4,660 ft. shut down.

BECKHAM COUNTY

Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Rig; rotary tools.	
Ray Johnson and J. R. Cuniff's No. 1 Brower, C NW Sec. 29-10-22w	Shut down	3,784 ft.
Producers Exploration Co.'s No. 1 Sidell, SE cor. SW SW Sec. 17-9-22w	Shut down	2,402 f.
Carson et al's No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down	1,606 ft.
White et al's No. 1 Green, SW cor. Sec. 24-10-24w	Shut down	1,320 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg.	3,830 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-11w	Shut down	1,090 ft.
Simms Pet. Co.'s No. 1 Cobea, SW NW Sec. 24-6-11w	Drlg.	2,727 ft.

CHEROKEE COUNTY

Weaver & Proctor's No. 1 Benge, NE SE Sec. 8-14-21	Abandoned	510 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1	Shut down	6,518 ft.

COAL COUNTY

Mid Western Oil Co.'s No. 1 Gum Bros., C SW NW Sec. 30-3-10	Rig.	
A. M. Van Orden's No. 1 Jamison, SE SW Sec. 31-1-9	Shut down	1,668 ft.
Blackwell O. & G. Co.'s No. 1 L. Jackson, NW cor. Sec. 26-3-9	Drlg.	4,310 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Shut down	3,030 ft.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE Sec. 8-3-10w	Rig.	
Shasta Oil Co.'s No. 1 Romwalt, SW NW Sec. 11-2-10w	Shut down	1,709 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 2-3-9w	Shut down	1,450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Drlg.	5,722 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down	100 ft.

GRANT COUNTY

Bu-Vi-Bar and Amerada's No. 1 Hurst, C SW Sec. 25-26-5w	Drlg.	5,585 ft.
Cowden et al's No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Abandoned	5,640 ft.

(Continued on Page 150)

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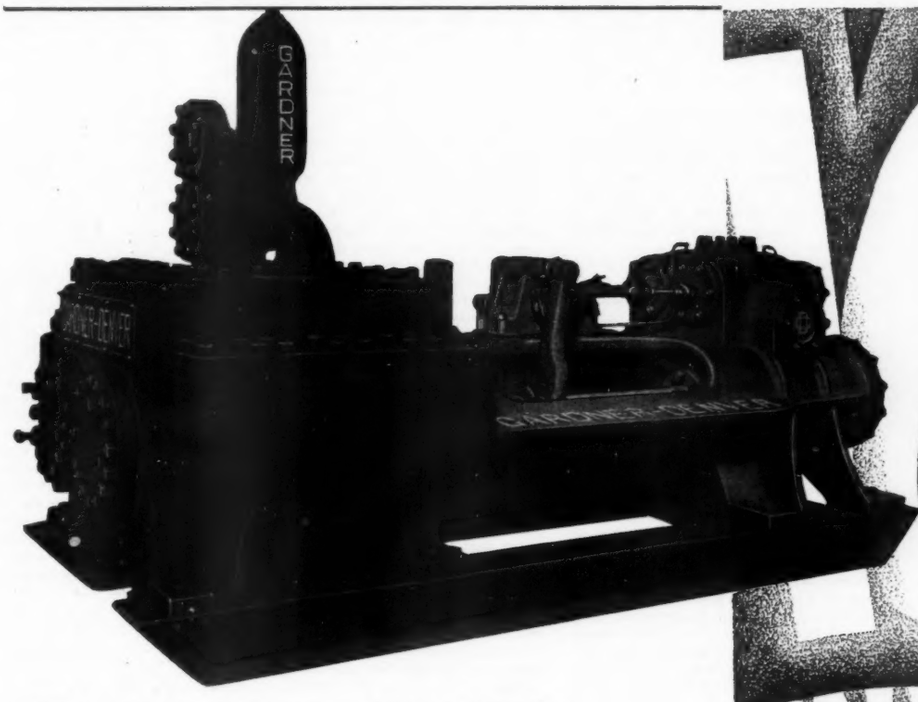

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CONTINENTAL

Production in Kansas Shows Increase

Eastborough Pool, Sedgwick County, Becoming More Important. New Wildcat Locations in Eastern and Western Counties

By W. A. Spinney
Staff Correspondent, Kansas Fields

The production of Kansas increased approximately 3,000 bbls. a day over the previous week's total. The estimated daily production for the week ending October 25 was approximately 115,500 bbls. During the week two purchasing companies announced they will only purchase a percentage of the oil they have been previously handling. The Vickers Petroleum Co. announces it will inaugurate a policy of purchasing a certain amount of the oil it has been running from properties and it will work out some plan of storing that which it does not purchase. The Derby Oil Co. announced several days ago it would store oil for its customers and advance 50 per cent of the purchase price on each payment date.

New wildcat locations announced during the week in western Kansas were as follows: Schleimeyer and others' No. 1 Clark, SW cor. NE NE, Section 11-9-25w, Graham County; J. Liggett's No. 1, SW cor. NW SW, Section 16-11-15w, in the northwestern part of Russell County, and Dewey & Mitchell's No. 1, C SW, Section 17-19-16w, Rush County, in the eastern part of the county.

Eastborough Developments

The Derby Oil Co.'s No. 3 Eastborough, CEL SW NE, Section 19-27-2, in the Eastborough Pool, in Sedgwick County, swabbed 1,025 bbls. the first 24 hours. The second 24 hours the well increased its output to 1,300 bbls. indicating the north end of the Eastborough Pool has a large potential production. The oil was found in chat at 2,976-82 feet. The potential production of the field is estimated at 15,000 bbls. and the pipe lines have been taking an average of 8,100 bbls. a day during the week. The well is located about 75 feet of another test being drilled by Seigel Brothers and others on a lot. The test was drilling at 2,700 feet on the last report.

The Derby Oil Co. has six completed wells in the Eastborough Pool with a potential of 4,200 bbls. a day.

In the southeast edge of the Eastborough Pool, Fisher & Lauck's No. 7 Trustee, SE cor. Section 19-27-2, failed to find oil in the chat at 2,978 feet. The 6-inch casing is being landed at 2,986 feet to case off a hole full of water. The owners are preparing to drill to the Simpson sand, which is found at approximately 3,250 feet.

The east side of the Eastborough Pool may be defined by the Derby Oil Co.'s No. 2 Rimel, NE cor. Section 30-27-2, which also found water at 3,313-19 feet in the Simpson sand and may be abandoned. Another test, one location east Magnolia Petroleum Co.'s No. 1 Brady, NW cor. Section 29-27-2, found a hole full of water in the chat at 2,983 feet and is preparing to drill to the deep horizon.

Eastborough's Twenty-third Well

The twenty-third well in the Eastborough Pool to find oil in the chat was Siegel Brothers and others' No. 1 Soukup, NE cor. SW NE Section 19-27-2. The big pipe was being pulled at 2,985 feet, preparatory to drilling deeper. It is located a short location north of the Derby Oil Co.'s No. 3 Eastborough, which made 1,300 bbls. on its initial test.

Vickers Petroleum Co. and others' No. 4 Keys, NW cor. SW NE Section 30-27-2, which is rated as a 1,400-bbl. well from swabbing tests will be put to pumping. The well extended production in the deep sand to the south. The Simpson sand was found from 3,254-56 feet. In a five-hour swabbing test it averaged 60 bbls. an hour.

A new location was announced in the Eastborough Pool by R. Ramsey and others' No. 1 Davis, SW cor. Section 17-27-2, the most northeasterly location in the pool, and the second location east of the National Refining Co.'s No. 1 Murdock, which is making around 400 bbls. a day and which was a half mile extension to production.

South of the Eastborough Pool, two semiwildcat tests were nearing pay horizons. Boyle, Grossman and others No. 1 Parks, in the NW cor. SW Section 13-28-2 Sedgwick County, has the top of the chat at 3,032 feet, and is preparing to land 6-inch casing at that depth. To the south a mile and a half A. Benson and others' No. 1 Carlton, in Section 24-48-2, has resumed operations and was drilling at 1,400 feet on the last reports. The test has been shut down for some time.

Reports From Important Wildcats

The wildcat test of Jasper & Beschka's No. 1 Cupp, SW cor. NE Section 22-18-9w, Rice County, has bradenheaded the gas found at 2,010-20 feet, and was drilling deeper at 2,500 feet on the last report. The gas is estimated at 7,500,000 feet a day.

The wildcat test of the Signal Oil Co., No. 1 Sellens, SW cor. Section 26-15-14w, in the southwestern part of Russell County, is believed to be running high on formations at the 3,000-foot level. It is located between the original Sellens Pool and the wildcat test drilled by Prairie Oil & Gas Co. and others' No. 1 Berrick, SE cor. SW Section 23-15-13w, which is producing around 80 bbls. a day.

The deepest test in Kansas was fishing for tools at 6,909 feet. It is Watchorn Oil & Gas Co.'s No. 2 Morrison NW cor. NE Section 20-32-21w, Clark County. The 4¾-inch casing has been landed in the hole.

The discovery well in the State Line Pool in Sumner County southwest of Caldwell, is off production. The well Gypsy Oil Co. No. 1 Williams in Section 16-35-3w, on its initial gauge made 1,200 bbls. and has declined to a 10-bbl. pumper. The other wells in the pool are producing as follows: Gypsy Oil Co.'s No. 1 Enderud, in Section 16-35-3w, is pumping 345 bbls. a day, No. 2 Enderud, a location north, is flowing 400 bbls. a day. Amerada Petroleum Corp. and Dixie Oil Co.'s No. 1 Clark, on the Oklahoma side of the state line, is pumping 110 bbls. a day.

Deep Tests in Coffey County

Operators in the east central part of Kansas are preparing new locations to test the deep pay horizons. Coffey County is one of the eastern sections which has been watched during the last few months. Another location has been announced by the Prairie Oil & Gas Co. for No. 1 Todd, NE cor. SE Section 35-21-13. The same company recently completed a wildcat test in the western part of the county near the Lyon County line which is reviving interest. The wildcat found oil in the Burgess sand.

Elk County has a new Wilcox sand producer and it may open another producing horizon in that county. Other wells are producing from shallower formations. Ferguson and others' No. 1 in the SW cor. NE NW Section 23-30-8, has 2,800 feet of oil in the hole from the Wilcox sand found at 2,911 feet. A production test is expected to be made at the well as soon as the muddy roads permit moving in material. Wells along the Elk County and Cowley County line are mostly producing from the Burgess sand and from the Kansas City lime.

Morris County has another wildcat test and the same operators are drilling another test deeper. Urschell and others' No. 1 Bersuch, NW cor. SE NW Section 10-17-7, is a new wildcat operation. Same operators are preparing to drill deeper No. 1 Scott, NE cor. SW Section 6-16-6, from a total depth of 2,420 feet.

In the north end of the Lost Springs Pool, in eastern Marion County, new wells have been added. It is believed by some that the granite ridge search which has been in progress will be resumed in the eastern part of Marion County and the western part of Morris County.

McCulloch and others' No. 1 Lilley, SW cor. NW NW Section 23-23-5, a wildcat in northern Butler County, found water at 1,505-35 feet, and is shut down.

Lane County in the western part of the state is expected to be one of the active districts for the wildcatter. It is west of Ness County and southwest of Trego County. These latter two are the most western counties now producing oil. As the result adjoining counties are being core drilled. A large number of blocks in the western half of Kansas are waiting the result which will determine new wildcat tests. Several western counties still without production are waiting the action of a number of oil companies that have been core drilling during the last year. Lane County has been one of the active areas under consideration. Phillips Petroleum Co. and Continental Oil Co. have core drills working on blocks in Lane County, supplying data on the sub-surface on numerous blocks. To the north of Lane County, two wildcat tests are being drilled in Gove County. New tests may be started in the western part of Ness County within the next month or two. The only producing well in Ness County is the Continental Oil Co.'s No. 1 in Section 7-18-25w, which is producing from below 4,000 feet.

Ellsworth's Good Well

The wildcat test of Slick Pryor & Lockhart and others, No. 1 Heiken, NW cor. Section 25-17-10w, Ellsworth County, is awaiting the installation of steam power and additional storage tanks. The present capacity of the storage tanks is 1,000 bbls. and this will be increased to 2,000 bbls. Some estimate the new well to be a 2,000-bbls. producer as the result of a short term swabbing test from the silicious lime at 3,230-43 feet. The well swabbed 180 bbls. the first 2 hours and 40 minutes, and the fluid in the hole was never lowered more than 800 feet. The well has swabbed 75 bbls. in one hour. Roads to the well are muddy and it has delayed the moving in of material. It may be swabbed later in the week and possibly drilled deeper.

Butler County

Austin and others' No. 1 Hollenbaugh, NE cor., Section 22-27-5, has been completed for 15 bbls. in sand 2,740-79 feet.

Chautauqua County

Leighty and others' No. 1 Helmick, SE cor. SW NE, Section 5-33-9, has been abandoned at 1,369 feet.

Cowley County

Gralap and others' No. 1 Stevens, SE cor. NE, Section 24-33-5, is drilling at 500 feet.

Elk County

Craft & Frazier's No. 1 Key, SE cor. NE, Section 26-31-10, has been completed for 20 bbls. in sand 1,972-89 feet.

Ellis County

Phillips Petroleum Co.'s No. 1 Kessler, SE cor., Section 32-11-17w, made 80 bbls. in sand 3,280-85 feet.

Graham County

Schleimeyer and others have cellar dug for No. 1 R. Clark, SW cor. NE NE, Section 11-9-25w. Gulf Coast and others' No. 2 St. John, NE cor. SW SE, Section 27-8-25w, has been abandoned at 2,000 feet. No. 3 St. John, SE cor. SW SE, Section 27-8-25w, is dry and abandoned at 1,700 feet. No. 4 St. John, SE cor. SW SE, Section 27-8-25w, has been abandoned at 4,346 feet. Naylor, De Costa and others' No. 5 St. John, SE cor. SW SE, Section 27-8-25w, is dry and abandoned at 5,052 feet.

Greenwood County

Leader and others' No. 1 Andrews, NW cor. SW, Section 26-22-10, is dry and abandoned at 2,340 feet. Empire Oil & Refining Co.'s No. 5-A Patterson, SW cor. NE SE, Section 36-23-11, has been abandoned at 1,956 feet.

Marion County

Stearns & Streeter made location for No. 2 McNichol, NE cor., Section 15-17-4. Arkansas Fuel Oil Co. and Dixie Oil Co.'s No. 1 Hacker, NW cor. NE,

(Continued on Page 125)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Rig.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.
BUTLER COUNTY	
National Ref. Co.'s No. 1 Settergren, NW cor. Sec. 32-26-4	Drlg. 2,660 ft.
McCulloch and Empire's No. 1 Lilley, SW NW NW Sec. 23-23-5	Drlg. 1,250 ft.
Farrell et al's No. 1 Sutton, NW cor. Sec. 18-28-7	Shut down 330 ft.
CLARK COUNTY	
Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	Fishing 6,909 ft.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Drlg. chat 2,198-2,213 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Drlg. 675 ft.
McGregor's No. 1 Wood, NE NW SW Sec. 20-22-15	Shut down 650 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Shut down 1,125 ft.
COWLEY COUNTY	
Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-32-8	Fishing 912 ft.
Tom Fine's No. 1 Boyd, NW NE Sec. 32-32-4	Shut down 2,650 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Drlg. 2,600 ft.
E. N. Morgan's No. 1 Whithair, NW SE Sec. 9-12-1	Silicious lime 3,330-39 ft.; dry and abandoned.
DOUGLAS COUNTY	
Steinbuckle's No. 1 Unknown, SW NE NW Sec. 34-14-21	Shut down 1,100 ft.
ELLIS COUNTY	
Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w	Fishing 3,916 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Abandoned 3,805-30 ft.; water.
ELK COUNTY	
Aladdin's No. 1 Donnell, NE SE SW Sec. 26-29-10	Drlg. 2,230 ft.
ELLSWORTH COUNTY	
Aladdin Pet's No. 1 Stoddenberg, C SW Sec. 22-16-10w	Rig on ground.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Shut down 330 ft.
•Aladdin and Carter Oil Co.'s No. 1 Barecky, C NW Sec. 3-16-10w	Drlg. 685 ft.
Slick et al's No. 1 Hecken, NW cor. Sec. 25-17-10w	5,000,000 ft. gas 2,980-91 ft.; 3,221-43 ft. 68 bbls. 1 hr., 147 bbls. 2 hrs.

(Continued on Page 153)

Producers on New Louisiana Domes

Two Extensions of Production at Orchard Dome, Fort Bend County. Eight Wells Reach Refugio Deep Sand

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Oct. 27.—Principal developments on the Gulf Coast the past week were in southern Louisiana. There two dome fields figured in completions with the addition of another good producer each. On the Texas coast two extensions of production at Orchard, Fort Bend County, were made almost simultaneously. In the lower coastal country at Refugio eight wells at the close of the week had reached the deep 6,400-foot horizon and either were testing showings or standing with casing cemented to test. Production of the Texas coastal district made a substantial reduction for the week ended October 25, but gains in southern Louisiana fields offset that to the extent that the Gulf Coast as a whole continued virtually unchanged in output.

Chief among developments was the completion on the Lake Barre dome in the marsh lands of Terrebonne Parish, southeastern Louisiana, of The Texas Company's No. 5 State-Lake Barre. This, the third producer on this new dome field, came in flowing 67 bbls. hourly, or better than 1,600 bbls. daily, on a half-inch choke. The oil is from sand at 3,805-27 feet, or approximately the same as in the other two wells, and being 27.8 gravity is the same as that previously obtained. Pressure of the well is 437 pounds.

Lake Barre is one of the seven domes discovered in the coastal marshes of Terrebonne Parish in 1928 by the Louisiana Land & Exploration Co. and which were turned to The Texas Company for development. Discovered geophysically, all since have been proved by cap rock or salt and five have been found productive, although only two are producing at this time. In addition to Lake Barre the other producing dome of the seven is Lake Pelto, but of these the former so far has indicated the more prolific possibilities. All the wells so far have been located in open water, necessitating a slow and costly development.

Black Bayou Dome

The other new dome field in southern Louisiana to figure in the completions was Black Bayou in northwestern Cameron Parish, southwestern Louisiana. Production at this dome was given a substantial extension to the southwest side of the dome by Shell Petroleum Corp.'s No. 1 State, which in the first 24 hours flowed 943 bbls. of fluid, 9 per cent wash water and the remainder oil. On Saturday the well was maintaining its flow, showing one-half per cent water and the remainder oil. The well is flowing from a deep flank sand at 5,175 feet, bottom of hole being 5,200 feet. Production is through 2-inch tubing and a three-eighths-inch choke. The oil is 26.2 gravity at a temperature of 80°.

This is the third deep sand well at Black Bayou, in addition to two shallow wells on top the dome, the first, No. 6 Watkins, being on the north side of the dome, and the others, No. 12 Watkins and No. 1 State, being on the south side. However, a fourth deep well, although shallower than the other three, late in the week had set screen to test sand at a total depth of 4,402 feet. The latter is several hundred feet to the eastward of No. 1 State.

Black Bayou Dome, like Lake Barre in Terrebonne Parish, is reached only by boats, being in swamp land a few miles east of Sabine Lake, the Texas and Louisiana line. The dome was discovered by Shell Petroleum Corp. in 1928 and on it this company has conducted steady development since 1929. Early drilling was confined to the shallow cap rock area where small production was obtained but which since has been turned over to the Freeport Sulphur Co. for sulphur development.

Orchard Dome Wells

The completion late in the week of two more wells at Orchard Dome, Fort Bend County, marked additional extensions of production eastward and westward around the dome on the south flank. Gulf Production Co.'s No. 25 Moore, with one joint of screen in sand at 4,126-40 feet, flowed 698 bbls. of fluid, 17 per cent water, in the first 24 hours. This extends the line of production approximately 300 feet northwestward around the dome. Gulf's No. 26 Moore, the northeastward extension of the line, came in flowing 600 bbls. of pipe line oil with 14 feet of scren at 4,026 feet. Gravity of the oil in the former is 26° (corrected), and in the latter 27.4° at a temperature of 80°.

These two wells make the seventh and eighth producers out of a total of 9 tests drilled on the south flank of the dome since the new pool was opened during 1929, and all of which, except one, are in a single line around the south side. The dome is owned and operated exclusively by the Gulf Production Co.

Union Sulphur Co.'s No. 2 H. J. Moss in the Lockport extension, 2,000 feet west of the main field, was completed late in the week making an estimated 5,000,000 to 6,000,000 feet of dry gas, 1,600 pounds pressure, on a three-eighths-inch choke from sand at 5,296-5,307 feet. This company's No. 1 Martha Moss, same district, tested salt water at 6,617 feet. No. 1 H. J. Moss, the discovery well, was worked over again and swabbed back in at 4,814 feet flowing 45 bbls. of fluid, 15 percent water, on a half-inch choke. The latter and Vacuum Oil Co.'s No. 7 Farquahar, an offset, so far are the only oil producers in this new area.

Racoon Bend Well

At Raccoon Bend, Humble Oil & Refining Co. added another well in its No. 4 J. W. Wilson, which flowed 151 bbls. in the first 8 hours from sand at 3,481 feet. Other completions of the week included Rio Bravo Oil Co.'s No. 92-B Cotton, Saratoga, 14 bbls. daily from a shallow sand at 154 feet; Houston Production Co.'s No. 15 Barngrover, Hull, a workover, flowing 250 bbls. of oil, sand 3,876 feet, and East Batson Oil Co.'s No. 2 Gulf, Batson, pumping 8 bbls. net oil, from sand at 898 feet.

Among abandonments was The Texas Company's No. 1 South Coast Co., the first test drilled on the Chatenton geophysical prospect in St. Mary Parish, La. This test, in Section 41-14s-10e, was quit in sandy shale at a total depth of 7,851 feet. This prospect was checked early in 1930 with seismograph and torsion balance. No showings were encountered in the test and no indication of a dome given but the prospect is not to be condemned for this reason with only one test.

Another deep wildcat test on a new geophysical test abandoned was Pure Oil Co.'s and Rycade Oil Corp's No. 1 J. H K. ranch, in the Robert Oliver survey on the Oyster Bayou prospect, southern Chambers County. This test was abandoned several weeks ago at 6,320 feet but later was gone back into and deepened to 6,738 feet and quit in sand and shale.

Gulf Refining Co. has made location for its second test on its Rose Dome prospect on the Mississippi river in the extreme southeastern tip of Louisiana, Plaquemines Parish. This test is approximately 200 feet distant from No. 1 1 Buras Levee Board, Section 27-21s-30e, which blew out 10 days ago, cratering and destroying the derrick and rig. The blow-out was from a shallow sand around 200 feet.

Deep Tests at Refugio

Of the deep tests due for early completion at Refugio, chief interest late in the week was centered on Houston Oil Co.'s No. 1 O'Connor, approximately 2 miles east of the main field and about a mile southeast of the Lambert district, where there are two wildcat producers. The O'Connor well is testing a sand at 5,872-5,913 feet. Moody-Seagraves Producing Co.'s wildcat, No. 1-A St. John, a mile south of Refugio Field, swabbed from 25 to 50 bbls. daily in sand at 5,491-5,500 feet but not being deemed a commercial producer from that horizon is being deepened in anticipation of picking some of the deeper horizons found in the Refugio Field.

Mission Drilling Co.'s No. 1 Moss Heard, Block 111, Refugio townlots, is now the deepest test in the Refugio area and late in the week was drilling salt water sand at 7,957 feet. The previous deepest test was Independent Oil & Gas Co.'s No. 6 Jerry Reilly which went to 7,618 feet. The latter after reaching that depth was plugged back to the shallow gas sand at 3,680 feet and is standing.

Of particular interest at this time is the leasing of formerly condemned acreage around the edges of the old domes which several of the major companies are doing. This new leasing is being done in view of possibilities of redrilling the outer edges of some of these domes in attempts to drill through cap rock and salt for sub-salt production. The success in this new coastal development at Barbers Hill and Allen Domes has revealed possible sources of new production around all old domes which may have been passed up in the past as the result of quitting tests on striking the salt.

Production

Daily average production for the pools in the Gulf Coast area for the week ending October 25 follows:

SOUTHEAST TEXAS

Allen	98
Barbers Hill	21,074
Batson	1,104
Big Creek	3,905
Blue Ridge	1,760
Brenham	140
Boling	992
Clay Creek	2,385
Damon Mound	735
DeWalt	11,974
Fannett	627
Goose Creek	4,503
Hankamer	1,496
High Island	904
Hull	7,806
Humble	16,706
Jasper County	25
Lost Lake	440
Markham	230
Moss Bluff	107
Mykawa	250
Nash	240
North Dayton	878
Orange	2,092
Orchard	1,724
Pierce Junction	10,732
Port Neches	1,441
Raccoon Bend	9,102
Refugio	25,644
Esperson (Sheeks)	2,949
Saratoga	1,340
Sour Lake	2,211
South Liberty	3,056
Spindletop	15,618
West Columbia	4,190
Total Southeast Texas	158,448
Week ending October 18	160,828
Decrease	2,380

SOUTH LOUISIANA

Anse La Butte	32
Bayou Blue	49
Bayou Bouillon	292
Black Bayou	575
Edgerly	495
Jennings	2,022
Hackberry	2,975
Lake Barre	1,768
Lake Pelto	53
Lockport	3,534
Port Barre	2,970
Sorrento	65
Starks	665
Sulphur	4,025
Sweet Lake	1,144
Vinton	6,160
Welsh	121
White Castle	1,030
Total South Louisiana	28,026
Week ending October 18	26,026
Increase	2,070
Total Gulf Coast	186,544
Week ending October 18	186,854
Decrease	310

GULF COAST FIELDS AND WILDCATS

Week Ended October 25
All Rotary

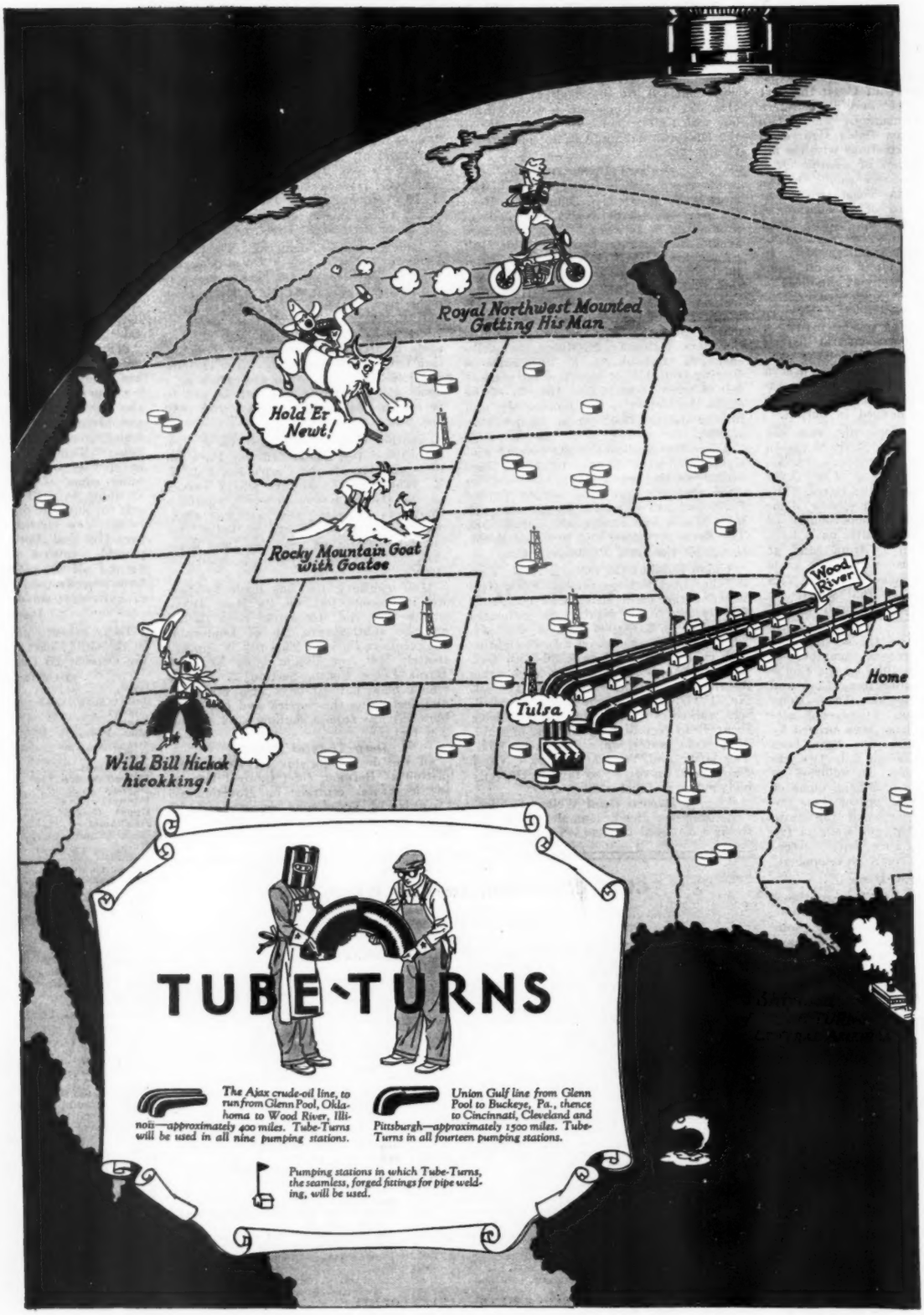
BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 4 Barber, north	Rig.
Humble Oil & Ref. Co.'s No. 6 fee, west	Drlg. hard sand 6,602 ft.
Humphreys Corp.'s No. 1 Fitzgerald, north	Comp. flowing 70 bbls. hourly on ½-in. choke 5,300-67 ft.
Humphreys Corp.'s No. 1-B Barber, north	Oil sand 6,463 ft.
Humphreys Corp.'s No. 6-A Barber, northwest	Fishing 5,015 ft.
Humphreys Corp.'s No. 1 Morgan (workover)	Pulling liner 6,404 ft.
Humphreys Corp.'s No. 8-B Kirby, northwest	Drlg. shale and lime 3,928 ft.
Humphreys Corp.'s No. 10-A Kirby (workover)	Gumbo 1,821 ft.; cmtd. 13⅜-in csg.
Humphreys Corp.'s No. 1 Winfree, west	Drlg. shale and lime 3,462 ft.
McAlbert Oil Co.'s No. 1-B Higgins, east	Drlg. shale and lime 3,810 ft.
Republic Prod. Co.'s No. 3 Kirby (workover)	To pump 6,700 ft.
Rio Bravo Oil Co.'s No. 1 Fisher, southwest	Drlg. shale 6,565 ft.
Sinclair Oil & Gas Co.'s No. 1 Smith, west	Oil sand 5,419 ft.; cmtd. csg.
Sinclair Oil & Gas Co.'s No. 2 Smith, west	Drlg. lime rock 4,380 ft.
Sun Oil Co.'s No. 5 Chambers (workover)	Pulling liner 4,672 ft.
Sun Oil Co.'s No. 7 Chambers, south	Drlg. salt 1,870 ft.
Sun Oil Co.'s No. 12 Wilburn fee, east	Drlg. shale and lime 3,330 ft.
Sun Oil Co.'s No. 13 Wilburn fee, east	Derrick.
Sun Oil Co.'s No. 1 Zadie Fisher, southwest	Sidetracking lime 5,209 ft.
The Texas Company's No. 1 Williams, southwest	Set screen 5,932 ft.
The Texas Company's No. 1 Winfree, west	Drlg. hard sand showing oil and gas 4,141 ft.
Yount Lee Oil Co.'s No. 1 Hindman, southwest	Hard sand 6,470 ft.; set csg.
Yount Lee Oil Co.'s No. 16 Chambers, south	Drlg. hard sand 3,618 ft.
Yount Lee Oil Co.'s No. 3 Fisher, southeast	Pulling screen 6,628 ft.
Yount Lee Oil Co.'s No. 6 Phillips, east	Rig.
Yount Lee Oil Co.'s No. 9 Woodward, southeast	Oil sand 5,256-98 ft.; set joints screen.

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 2 Duncan-State	Shale 3,125 ft.; set 6⅝-in. csg. 3,120 ft.
Humble & Valley's No. 3-B Hardy	Derrick.
Humble & Valley's No. 9 Mueller	Derrick.
Humble & Valley's No. 7 Payne	Derrick.
Humble & Valley's No. 8 Payne	Derrick.
Humble & Valley's No. 1-B Reese	Drlg. sandy shale 2,699 ft.
Humble & Valley's No. 1-B Remmert	Drlg. sand and shale 255 ft.
Humble & Valley's No. 6 Saunders	Derrick.
Humble & Valley's No. 3 Sherrod	Building derrick.
Humble & Valley's No. 11 Thompson	Drlg. sand 124 ft.

(Continued on Page 118)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Hold 'Er Newt!
Rocky Mountain Goat with Goatee
Wood River
Tulsa
Home
Wild Bill Hickok hicokking!
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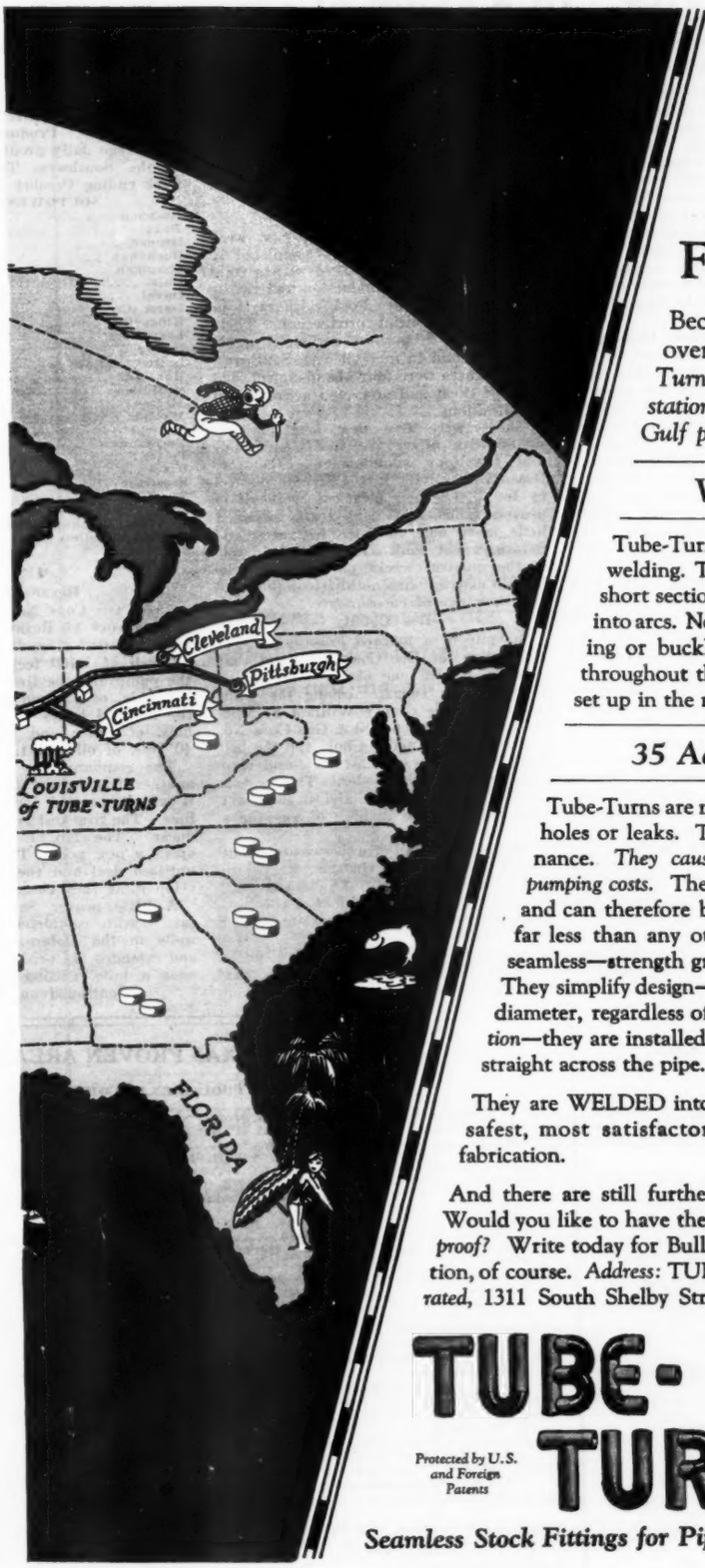

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New Gauge of Field Being Taken Following Conference of Producers and Allowable Runs Will Be Increased

By B. D. Stevenson
Staff Correspondent Southwest Texas Fields

SAN ANTONIO, Tex., Oct. 27.—Four wells in the Pettus Townsite Pool in Bee County this week gauged an average of 919 bbls. per well. The biggest was the Union Producing Co.'s No. 18 Ray, offsetting the townsite on the east, which gauged 1,055 bbls. The smallest was the Humble Oil & Refining Co.'s No. 6 McKinley, offsetting the townsite on the south, which gauged 775 bbls. The C. R. M. Oil Co.'s well, center Block 34, gauged 913 bbls. and Union Producing Co.'s No. 15 Ray, offsetting the townsite on the east, gauged 933 bbls. The wells are allowed to flow six hours and the gauge is based on the last three hours' flow. On this average the potential of the 15 townsite wells is 13,785 bbls. daily. The gauge will be completed this week.

The Pettus Townsite got a backset in the southwest corner when the C. R. M. Oil Co.'s test, center Block 9, made salt water at total depth 3,913 feet. Al Buchanan is nearly to sand depth in the center of Block 8 offsetting it on the south and Houston Oil Co. is down at a depth which, with no oil, makes things look gloomy in the center of Block 21, an east offset to Block 8. The whole southeast corner of the townsite is productive of either gas or oil, but the rest of it looks discouraging. Depth of all these wells is around 3,900 feet and down to 3,927 feet.

Increase in Allowable Runs

As a result of conferences of Pettus producers in Houston the new gauge of the field is beink taken and the townsite pool's allowable runs will be increased though the Ray-McKinney Pool a mile or more east and the Cosden Pool a mile or more west, will remain the same, the Ray-McKinney maximum at 2,750 bbls. daily and the Cosden at 1,250 bbls. daily. The Railroad Commission will be asked to raise the townsite from 4,000 bbls. up to 4,500 bbls. and increase the choke from one-fourth to five-eighths inch.

Under the old deal the maximum of any well was 400 bbls. regardless of what it ganged and the largest choke was fixed at a quarter inch whether the well produced its allowance under that choke or not. It is agreed that all gas wells will be shut in until such time as there is pipe line market for the gas. Union Producing Co. has its line nearly completed and will also build a natural gasoline plant so it will not be long for the gas wells to be shut in.

Except for the proration hearing at Austin the week has been one of the quietest in Southwest Texas in that there were fewer completions and not much of anything in the shape of a wildcat threatening to evolve itself into a new discovery.

Production Held to 42,000 Bbls.

Darst Creek operators have been holding their production to 42,000 bbls. until recently. The last gauge showed 171,378 bbls. daily as the field's potential. On the basis on which allowable runs were figured this would place the allowable for the field at 59,745 bbls. Pipe line companies asked the Railroad Commission to cut down the allowable and pending that hearing producers continued to produce on the old basis until this week. Then they broke over and the field retroactive to October 18 is to produce at the rate of 59,745 bbls. Some companies were slow in getting started and produced at greater rate to catch up.

The great bulk of the production is major oil company production. There are two or three small producers but they seem to have paid little attention to proration. Hence it is a major company deal and a major company fight.

Output of the field was supposed already to be greater than the capacity of the lines to carry it yet every company in the field nearly is drilling more wells and announcing more locations.

The supreme court of Texas has issued a writ of error in the Jake Jarmon case affecting a narrow strip in the southwest end of the field. The Railroad Commission refused a permit to drill on the strip under the special rule. Jarmon appealed to the courts and won in the district court and again in the court of civil appeals, but the supreme court will hear the case itself.

Laredo District

In the Laredo district the past week there were three oil wells completed in the Escobas-Muckelroy Pool with a total of 225 bbls. initial production and two in the Killam-Cuellar Pool with a total of 120 bbls. initial production. There were heavy rains in the district again last week and in fact all over Southwest Texas. There were four abandonments but none of them had attracted a great deal of attention.

There were five new locations announced to offset the five completions and the four abandonments therefore lessen the activity in the Laredo district by four. The new locations were all in proven fields. Wildcat tests added a little more hole in some instances and in others not that. It was withal one of the quietest weeks on record in the Laredo district with nothing running into any showings of consequence.

Bee County

In spite of a marked lessening of operations in the Bee County district that territory is still one of the most active in Southwest Texas. Among the wildcat tests in the county William F. Morgan and Independent Oil & Gas Co.'s No. 1 Quincy is still making hole and the last depth reported was 5,294 feet, and shut down to repair the boiler. This test is 12 miles east of Beeville and at shallower depth had quite a display of gas for a time.

Southeast of the Pettus Townsite, about 3 or 4 miles, E. S. Price has started to deepen his No. 1 Weiss which was completed as a small gas well at 4,414 feet. The pressure and volume have diminished considerably.

Cosden's No. 1 Stoltzfus, a few miles south of the Prices' No. 1 Weiss, has set casing at 4,352 feet. Total depth is 4,375 feet and it showed considerable gas and looks like another producing gas spot.

Production

Average daily production for the pools in the Southwest Texas area for the week ending October 25 follow:

SOUTHWEST TEXAS

Branyon	25
Bexar	28
Bruner	15,399
Buchanan	149
Chapman	8,591
Dale	294
Duval	225
Darst Creek	51,667
Kingsville	120
Larremore	33
Luling	9,175
Lytton Springs	762
Manford	275
McMullen	15
Medina	22
Mirando	14,435
Mineral	30
Normanna	30
Pettus	7,767
Saxet	50
Somerset	1,489
Yoast	315
Total Southwest Texas	110,896
Week ending October 18	105,875
Increase	5,021

Bexar County

Penn Oil Co.'s No. 1 Cooksey in the eastern edge of Bexar County near Adkins, reported a week or two ago as an oil well at 1,460 feet, has been put on the pump and the first 22 hours pumped 109 bbls. of oil and 10 bbls. of water, the next 24 hours 43 bbls. of oil and 2 bbls. of water and the next 24 hours 40 bbls. of oil and 1.3 bbls. of water.

The company has made location for another test to the northeast of it but it will be carried down to the Edwards lime. The first test is a Taylor marl producer. The No. 1 Cooksey, however, opens a new pool. The lease block is a unitized deal and the operators can develop it as they choose.

A little nearer San Antonio on the east Gatlin completed one of the best wells in the Dobrowolski shallow pool and extended the production to the southwest a mile, getting a 40-bbl. well at

(Continued on Page 125)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Frontier Oil Co.'s No. 2 Boynton, 775 ft. SW of Brown-Fuller gas well	T. D. 2,800 ft.; shut down.

BLANCO COUNTY

Anderson & Manning's No. 1 Speer, 600 ft. to S line, 800 ft. to W line, John W. Speer Sur.	Moving in rig.
Ben H. Ashe Pet. Corp.'s No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City	Location.
Hardy-Sitton's No. 1 McMillan	T. D. 570 ft.; shut down.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 600 ft.; shut down.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 660 ft.; shut down.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 23	T. D. 900 ft.; standing.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,350 ft. to N line, Sur. No. 94	T. D. 450 ft.; drlg.

BASTROP COUNTY

Pacific Oil & Gas Co.'s No. 1 J. M. Litton, 150 ft. N and W lines of tract	Will change location.
Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	T. D. 375 ft.; standing.
Champion et al's No. 1 Smith, 2,541 ft. to NW line, 463 ft. to SW line of tract, T. Standifer Sur.	T. D. 2,233 ft.; drlg.
Texas Pet. Products Co.'s No. 1 Trigg, Stewart Sur.	T. D. 1,670 ft.; coring.
R. S. Bolling's No. 1 McWilliams, 150 ft. from N line, 1,111 ft. from W line of Wm. McWilliams tract, Glasscock Sur.	T. D. 400 ft.; drlg.

BROOKS COUNTY

Southern Crude Oil Purchasing Co.'s No. 1 Holbien-Wormser, 900 ft. from E line, 1,000 ft. from S line of Blk. 39, E. P. de Maguellas Sur.	T. D. 4,102 ft.; reaming.

BEE COUNTY

William F. Morgan and Independent Oil & Gas Co.'s No. 1 Quincy, C Blk. 9 of 11,000-ac. Quincy Subd. of Bee County	T. D. 5,294 ft.; shut down.
O'Neal & Catlett's No. 1 Pat Pugh	Location.
Hurlbut et al's No. 1 Mrs. D. Chestnut	T. D. 3,600 ft.; drlg.
Walter Rawlins' No. 1 P. L. Campbell, C B.&B. Sur.	T. D. 152 ft.; drlg.
E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss.	Location.
E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur.	T. D. 3,715 ft.; shut down.

(Continued on Page 115)

SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Eckert & Son's No. 1 Brehm, 150 ft. from N line, 1,800 ft. from E line, 118-ac. tract, P. L. Buquor Sur.	Location.
Eckert & Son's No. 8 L. Sandemer, 625 ft. from S line, 1,155 ft. from W line, Sur. 52	T. D. 318 ft.; drlg.
Gatlin Oil Co.'s No. 1 Beck, 150 ft. from NE line, 2,000 ft. from SE line, 279-ac. tract, Juan Montes Sur.	T. D. 750 ft.; completed for 30 bbls.
Morgan Bros.' No. 3 Masterson, 300 ft. S of No. 2 Masterson, Miguel Gortaris Sur.	T. D. 550 ft.; set csg.
Pen-Tex Oil Co.'s No. 5 Sandemer, 300 ft. S of No. 4 Sandemer	Location.
Pen-Tex Oil Co.'s No. 6 Sandemer, 300 ft. S of No. 5 Sandemer	Location.
W. R. Swearingen's No. 2 Halberdier, 300 ft. SE of No. 1, J. Perege Sur.	T. D. 460 ft.; drlg.
A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur.	Location.
A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur.	Location.

DARST CREEK FIELD—GUADALUPE COUNTY

Gulf Production Co.'s No. 9 W. R. Posey	T. D. 2,410 ft.; drlg.
Humble Oil & Refining Co.'s No. 2-A Dowdy, NE cor. of "A" lease	Location.
Humble Oil & Refining Co.'s No. 9 D. D. Baker, 450 ft. from E line, 150 ft. from N line of lease, Darst Sur.	Building derrick.
Humble Oil & Refining Co.'s No. 7 Wilson, 150 ft. from N and E lines of lease	T. D. 300 ft.; drlg.
Humble Oil & Refining Co.'s No. 17-A L. G. Denman	T. D. 2,586 ft.; completed for 1,500 bbls.
Humble Oil & Refining Co.'s No. 18-A L. G. Denman	T. D. 2,552 ft.; W.O.C.
Magnolia Petroleum Co.'s No. 3 Klein, 300 ft. SE of No. 2, 450 ft. from SW line of lease	Rigging up.
Magnolia Petroleum Co.'s No. 10 Thomas Dix, east offset to No. 3 Thomas Dix, J. W. Robinson Sur.	T. D. 2,564 ft.; completed 20 bbls.
Magnolia Petroleum Co.'s No. 5 Rand Miller, 390 ft. from NW line, 780 ft. from SW line of lease, Alexander Sur.	Derrick.
Magnolia Petroleum Co.'s No. 12 Thomas Dix, 450 ft. from NE and NW lines of tract, J. W. Robinson Sur.	T. D. 2,610 ft.; completed for 960 bbls.
The Texas Company's No. 2 Schmidt-Wiley, 450 ft. from E line, 150 ft. from S line of lease	T. D. 1,318 ft.; drlg.

(Continued on Page 116)

Elesco Superheaters

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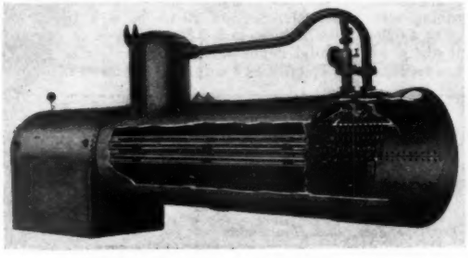
* * * * *



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Lucey Manufacturing Corp., Chattanooga, Tenn.
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10-30-30

Wells Prove Up More of Hobbs Pool

Best of Three Completions Is Shell Company's No. 2-B McKinley, Which is Assigned a Potential of 23,911 Bbls.

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Oct. 27.—Three wells were completed in Section 20-18-38, in the northern part of the Hobbs Pool in New Mexico, proving up more than half a section, the best of the three being the Shell Petroleum Corp.'s No. 2-B McKinley, which was given a potential of 23,911 bbls. Allowable output of the field was reduced by 625 bbls. daily by the proration committee for the last half of October. Ninety-five units, or 3,800 acres, are now in production.

Five wells were completed the past week and one new location far to the west of production was made. Nine wells reported last week waiting for gauging to establish proration were rated at 85,527 bbls., or an average of 9,503 bbls. per well, the best one being the Continental Oil Co.'s No. 3-A State, which broke the record for the field with a potential of 25,531 bbls. daily. One well was completed in Eddy County, Leonard & Levers' No. 4 State, for 5,500,000 feet of gas. A deal for 21,500 acres in Rio Arriba County means a Pennsylvanian test in that area.

Colorado's new discovery in Weld County in the Platte Valley Petroleum Co.'s No. 1 Patterson, is developing considerable interest and the lease play extends over an area about 20 miles long in a northwest-southeast direction. The well will be drilled into the sand next week according to present plans. The Lakota sand test on the Wellington Dome in Larimer County is showing a little water in the top.

Two completions were reported in Wyoming, a 3,500,000-foot gas well for the Mountain Fuel Supply Co. in Sweetwater County, and a 12-bbl. pumper in the Osage Field.

NEW MEXICO

Hobbs Pool—Lea County

The executive committee in charge of proration in the Hobbs Pool in Lea County, New Mexico, set the allowable outlet for the period from October 16 to October 31, inclusive, as 31,715 bbls. daily, as compared with 32,340 bbls. daily for the first half of the month, a decrease of 625 bbls. daily. The total allowance since proration went into effect last July up to the middle of October was 3,285,409 bbls. and the three pipe lines ran a total of 3,225,402 bbls. during the same period, a shortage of 60,000 bbls. The reduction in the allowable outlet is expected to bring production down to about the requirements of the pipe line companies.

The potential production of the pool on October 16, as established by the executive committee, was 819,193 bbls. daily from 106 wells on 95 units of 40 acres each. This compares with 678,406 bbls. from 89 wells on 79 units on October 1, an increase of 140,787 bbls. in potential daily production, 17 in the number of wells and 16 in the number of units. The figures indicate that the field is not only approaching rapidly the recent estimate of 1,000,000 bbls. per day, but that it is broadening out in productive area. The report of October 1 gave 95 units of 40 acres each, or a total of 3,800 acres in production as compared with 79 units, or 3,160 acres two weeks previous.

Only 28 Wells Drilling

Drilling operations in the field passed the peak more than a month ago and at present there are only 28 wells drilling compared with a maximum of 73 at any one time. The only new location made the past week was the National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, nearly 4 miles west of the nearest producer and which will be strictly a wildcat operation.

Five completions were reported, several of which are outside wells in the northern part of the field that indicate by their performance that the edge is still some distance away in that territory. The California Co.'s No. 1 McKinley, C S half S half NW, Section 20-18-38, was drilled to 4,224 feet and the 3-inch tubing was run to 4,204 feet. On an official test it was given a potential of 7,452 bbls. daily and 55,000,000 feet of gas. This well is three-fourths of a mile east of the Tidal Oil Co.'s No. 1 Hardin, the nearest producer in that direction and, until this week's completions were reported, was a mile north of the nearest producer.

The Shell Petroleum Corp.'s No. 1-B McKinley, C N half N half NW, Section 20-18-38, an offset on the south to the California Co.'s No. 1 McKinley, was completed at 4,210 feet with the 3-inch at 4,194 feet. It found the pay at 4,175-4,210 feet and was given a rating of 8,489 bbls. of oil and 6,000,000 feet of gas. It topped the anhydrite at 1,595 feet and the brown lime at 2,915 feet. Its elevation is 3,654 feet.

Shell Well Potential 23,911 Bbls.

The Shell Petroleum Corp.'s No. 2-B McKinley, SE cor. SW, Section 20-18-38, was given a potential of 23,911 bbls. of oil and 9,500,000 feet of gas. The total depth is 4,205 feet and the tubing was run to 4,187 feet. The pay was at 4,020-4,205 feet, the top of the anhydrite at 1,565 feet and the top of the brown lime at 2,866 feet. The elevation is 3,647 feet.

The three wells above mentioned are all outside wells and prove up additional territory.

The Humble Oil & Refining Co.'s No. 1 Grimes, SW NE NE, Section 29-18-38, joint with the Kirby Petroleum Co., found the oil at 4,055-4,223 feet and the tubing is at 4,185 feet. It was given a potential of 7,128 bbls. of oil and 6,300,000 feet of gas. The elevation is 3,644 feet and the top of the anhydrite was at 1,530 feet and the top of the brown lime at 2,840 feet. The first gas was at 2,875 feet and the first oil at 3,220 feet.

The Sun Oil Co.'s No. 2 McKinley, C SE NE, Section 5-19-38, was drilled to 4,175 feet and topped the pay at 4,000 feet. The 3-inch tubing is at 3,975 feet. On an official gauge it was rated at 4,406 bbls. of oil daily and 8,000,000 feet of gas. It topped the anhydrite at 1,460 feet and the brown lime at 2,780 feet. The elevation is 3,618 feet.

New Wells Assigned Potentials

Nine wells reported last week as having been drilled to completion and tubed awaiting proration tests came in under the proration agreement on October 16 and their potentials were as follows:

The Continental Oil Co.'s No. 3-A State, NE NW SE, Section 29-18-38, which topped the record for the field, was given a potential of 25,531 bbls. of oil and 25,000,000 feet of gas.

The Tidal Oil Co.'s No. 3 Grimes, NE cor. SE, Section 29-18-38, was rated at 16,273 bbls. and 9,800,000 feet of gas at a total depth of 4,190 feet.

The Texas Company's No. 3 McKinley, C SW SW, Section 4-19-38, an outside well, made 6,350 bbls. of oil and 5,000,000 feet of gas at 4,175 feet.

The Ohio Oil Co.'s No. 5 State-Northrup, SW cor. SE, Section 32-18-38, joint with the Independent Oil Co., was credited with a capacity of 7,096 bbls. and 5,000,000 feet of gas.

The Ohio Oil Co.'s No. 3 State, NW cor. SW, Section 30-18-38, was given a potential of 7,517 bbls. of oil and 7,000,000 feet of gas.

The Midwest Refining Co.'s No. 26 Terry, C SE SE, Section 9-19-38, which is near the edge in the southeastern part of the field, was given a potential of 826 bbls. through the tubing only.

The Midwest's No. 6 McKinley, NW cor., Section 5-19-38, was rated at 2,203 bbls. of oil and 2,000,000 feet of gas.

The Continental Oil Co.'s No. 3-B State, C N half N half SW, Section 33-18-38, gauged at the rate of 16,718 bbls. of oil and 50,000,000 feet of gas.

The Continental's No. 2-A State, SE cor. SW, Section 29-18-38, was given a potential of 3,013 bbls. and 4,500,000 feet of gas.

Midwest Well Draws Attention

A well that is attracting attention is the Midwest Refining Co.'s No. 29 Turner, C SW SW, Section 34-18-38, which is located in the Hobbs Townsite and a mile east of the nearest producer in the southeastern end of the pool. It is drilling at 2,875 feet in lime and anhydrite. It topped the brown lime at 2,850 feet and had shows of gas at 2,752-62 and 2,855 feet. A producer at this location not only would mean an important extension of the productive area, but would result in some townsite drilling. The Midwest is reported to have notified owners of town lots of its intentions to drill five wells in Hobbs and four in New Hobbs. The lots were sold with mineral rights reserved and the Midwest is taking this step at this time to protect its interests in the event the area is proven productive. The Continental Oil Co. and the Amerada Petroleum Corp. have mineral rights in the two townsites and the Skelly, Shell and Landreth companies have offset acreage on the north.

Routine Drilling

Hobbs routine drilling includes the following:

The Amerada Petroleum Corp.'s No. 3-B State, SE NW NW, Section 29-18-38, is drilling at 3,450 feet in lime and anhydrite. It topped the brown lime at 2,816 feet and the elevation is 3,653 feet. Same company's No. 4-B State, NE cor. NW, Section 29-18-38, cemented the 9-inch at 2,796 feet. It bottomed the salt at 2,615 feet.

The Atlantic Oil Producing Co.'s No. 1 Grimes, SW cor. SE, Section 20-18-38, is bottomed at 4,128 feet in lime and cemented the 7-inch at 4,055 feet.

The California Co.'s No. 3 State, SE cor., Section 29-18-38, cemented the 7-inch at 3,950 feet, and its No. 4 State, SW cor. SE, Section 29-18-38, cemented the 7-inch at 3,934 feet.

The Continental Oil Co.'s No. 1-C State, C NW SE, Section 5-19-38, commenced spudding on October 14.

The Empire Gas & Fuel Co.'s No. 3 Hardin, SE NE NW, Section 19-18-38, spudded on October 7 and is drilling at 110 feet in the red beds, and its No. 3 Fowler, SW cor. NE, Section 31-18-38, topped the anhydrite at 1,485 feet and is drilling in salt at 2,180 feet.

Hobbs High, Inc.'s No. 1 Tatum, NW SW SW, Section 35-18-38, is shut down at 4,206 feet.

The Humble Oil & Refining Co.'s No. 1-A State, NE cor. SE, Section 25-18-37.

(Continued on Page 103)

DELIVERIES IN TURNER VALLEY EXCEED LAST YEAR BY 207,000 BBLS

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Oct. 25.—In the first nine months of 1930 Turner Valley deliveries to the Imperial and Regal refineries aggregated 879,701 bbls. and exceeded the deliveries during the corresponding period of 1929 by approximately 207,300 bbls. The 1930 production to the end of September represents a gross revenue to the operating companies of around $3,078,953. With three months' production still to come, the 1930 yield from Turner Valley is expected to exceed 1,000,000 bbls., and may run close to 1,200,000, with a gross return of considerably more than $4,000,000.

Home Oil Co.'s No. 3 was the outstanding producer during the nine months' period with an aggregate of 91,912 bbls. and an average of 10,168 bbls. a month. Freezing somewhat interfered with production. The next largest producer, and the steadiest, was Royalite Oil Co.'s No. 17 in the central section, which made 59,293 bbls. Home's No. 1 produced 53,757 bbls. in the nine months. Production from Royalite's No. 4, which has been productive since 1924 and was for years the greatest well in the field, aggregated 23,581 bbls. for the nine months.

New Proven Areas

Developments in South Turner Valley in the past few months have added two new proven areas to the original Home Field. The latter was first opened in the deep lime a couple of years ago when Home Oil Co.'s No. 1 was carried to the Madison and developed a big producer, which attracted a lot of attention to Section 20-19-2w5. Two areas south of this section have now come into the limelight. Section 16-19-2w5, afted developing two small producers, Homestead Oils' No. 1 and East Crest Oil Co.'s No. 1, got a big boost when East Crest's No. 2-A recently proved the biggest producer in the field. Section 16 corners diagonally on Section 20, to the south and east, and the producing wells there are on the east fold of the Turner Valley structure. To the west is Section 17, where the Mayland Oil Co. and Lowery Petroleums wells have proved big producers. The East Crest-Mayland area is 1¼ miles south of Home's Nos. 1 and 3.

A mile and a half southeast of this area, and due south of Section 16, is Section 4-19-2w5, noted in the pioneer days of the field for the drilling of the Record Oil Co.'s deep well, which established a new depth record at that time but failed to reach the deep lime. Section 4 was largely leased by Mill City Oils, Ltd., later reorganized as Mill City Petroleums, Ltd. Mill City's No. 1 was some months ago finished deep in the lime without commercial production, and Mercury Oils' No. 2 followed as a small producer. Later, Mercury's No. 3 was brought in with around 243 bbls., and Miracle Oils' No. 1 in the same section has now been completed with a still bigger production. Half a mile east and slightly south of Mercury's No. 3 is Sterling-Pacific's No. 1, the farthest south producer in the field. This test

(Continued on Page 124)

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Smackover Extended to the Southwest

Revival of Activity in Champagnolle Field. Wildcat in De Soto Parish Bailed. Mississippi Has Twenty-first Gas Well

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Oct. 27.—An apparent extension of the Smackover Field three-quarters of a mile southwest by the long-heralded deep test to 4,500 feet which stopped at 2,740 feet and set casing in the lower stratum of the four Smackover sands and is now looming for a producer, a revival of activity in the southern part of the old quiescent Champagnolle Field of Union County, Arkansas, which suddenly came to life during the week with a 1,500-bbl. flowing well, and the bailing of a wildcat test in DeSoto Parish furnished the high spots of the past week in this territory.

J. E. Crosbie, Inc., and others' No. 1 G. L. Murphy, SW SW, Section 13-16-16, was planned as a co-operative 4,500-foot test to test the deeper pay possibilities of Smackover. However, testing 150 feet of oil in 20 minutes through drill stem in the 2,700-foot zone, 6⅝-inch casing was set at 2,735 feet with total depth of 2,740 feet. Bailing was under way October 25 with indications of getting a producer. The test has 5 feet of sand.

Ohio Oil Co.'s No. 1 Pumphrey, in Section 12-17-14, came in Friday flowing at the rate of 200 bbls. of fluid the first hour about 20 per cent mud and water and later settled down to about 60 bbls. net oil hourly. It also has 5 feet of sand. The oil tested 29.4 gravity. This new producer is in the southeast part of the field.

Two and a half miles northeast of the recently completed 12-bbl. pumper of Pelham and Bundy in No. 1 Rhodes, Section 32-13-14, 6 miles southwest of the Holly Field in DeSoto Parish, J. W. Clark is ready to test No. 1 Tidwell, in Section 22-13-14, at a depth of 2,933 feet with 12 feet of sand which showed oil. If this well is successful it will spur drilling in that area which has been rather low since the lenticularity of Holly was discovered. In the same general territory Odell and Lawton have plugged back to cut off salt water after testing salt water with a show of gas at a total depth of 3,004 feet in No. 1 Tidwell-Tull, in Section 11-13-14. On the edge of the Holly producing area which is confined to Section 5-13-13, Standard Oil Co.'s No. 4-A Farmer in that section cored sand from 2,832-61 feet without any show.

Daily Average Production

Daily average oil production for the week follows (in barrels):

NORTH LOUISIANA	
Caddo, light	8,365
Caddo, heavy	2,755
Homer	3,390
Haynesville	5,110
De Soto-Red River	2,965
Elm Grove	560
Bellevue	630
Cotton Valley	1,875
Urania	5,410
Pleasant Hill	490
Sarepta-Cartersville	2,680
Zwolle	6,750
Holly	870
Total this week	41,850
Total last week	42,170
Decrease	320
ARKANSAS	
El Dorado	4,085
Smackover, light	4,960
Smackover, heavy	36,340
Stephens	890
Nevada	1,020
Lisbon	870
Champagnolle	3,550
Bradley	65
Mount Holly	85
Urbana	900
Total this week	52,765
Total last week	52,840
Decrease	75
Total both States this week	94,615
Total both States last week	95,010
Decrease	395

Gibsland District

In the Gibsland district of Bienville Parish where a recent test showed some oil in the Nacatoch around 2,250 feet, Olds and Smith are arranging for a drill stem test in No. 1 Brice, in Section 15-16-6w, after encountering a sandy shale which smelled of oil. Andrews & Davlin's No. 1 Nattin, a wildcat in Bossier Parish, tested 1,000 feet of oil with a show of salt water through drill stem at 1,546 feet and will be deepened.

In Ouachita Parish a wildcat southwest of the Monroe gas field is drilling gummy chalk at 2,762 feet after topping Monroe gas rock low at 2,462 feet. This test is C. W. Frierson's No. 1 Haynes in Section 9-17-3e and probably will be a deep test.

Southern Carbon Co.'s No. 2 C. M. L. McCoy, Section 1-16-6e, Richland Parish, which tested dry at 2,450 feet where gas pay is normally encountered in that field, has been deepened to 2,491 feet where it also tested dry. Operators are waiting orders. This test is in the northeast part of the field, although there is one gasser beyond it on the edge.

Zwolle Field

Dixie Oil Co.'s No. 1 Parrott, in the northeast part of the Zwolle East Field, tested dry through drill stem at 2,450 feet in chalk which was topped at 2,424 feet. It probably will be deepened. Lyons et al's No. 1 Neeley, Section 32-8-11, in the southeast extension of the same field, tested dry at 2,300 feet and at 2,444 feet and then whipstocked at 2,024 feet. Two miles south of production in the West Zwolle (Blue Lake) field Magnolia Petroleum Company's No. 1 Giaque in Section 26-7-14, intended as a deep test, showed one joint of mud and two joints of salt water through drill stem from 3,666-93 feet and will continue drilling. Teteco Oil Co.'s No. 1 Louisiana Long Leaf in Section 18-6-12, six miles south of Zwolle production, which had a gas blowout at 4,077 feet and then hung drill stem, has been cleaned out and 6⅝-inch casing will be set at 3,984 feet.

Bossier Parish

H. I. Morgan and Associates have abandoned No. B-6 Weatherbee in Section 22-19-11, Bossier Parish, on the southwest flank of the old shallow Bellevue Field, where they obtained several gassers and one abortive oil well in the upper Trinity in the 1,800-1,900-foot zone. The test just abandoned showed salt water in 12 feet of oolitic lime, the formation in which the pay was encountered in the producers.

Two gassers were completed in the Sligo district of Bossier Parish, one by Louisiana Gas and Fuel Co. in No. 1 Webb, Section 24-17-12, and the other by Woodley Petroleum Co. in No. 2 Harris, Section 14-17-12. Calatex Oil and Gas Co. extended the Greenwood gas field about a quarter mile north in completing No. 1 Hudson in Section 8-16-16, Caddo Parish, which gauged 7,500,000 feet of gas at total depth of 2,980 feet, 6-inch casing being set at 2,807 feet.

Michlouzanna Oil and Gas Co.'s No. 1 Payne, a wildcat in Section 12-11-16 DeSoto Parish, which tested dry some weeks ago, has been abandoned at a depth of 2,600 feet.

Monroe Gas Field

Grecian Bend Gas Co.'s No. 1 Gutherie, Section 49-20-4e, Ouachita Parish, Monroe gas field, was completed as a 9,000,000-foot gasser with 575 pounds rock pressure at depth of 2,157 feet. The Richland Parish gas field added three gassers. Greenwood Production Co.'s No. 1 Boughton, Section 33-16-6e, was gauged at 24,000,000 feet with depth of 2,460 feet; Palmer Corp.'s No. 1 Rhymes-Earle, Section 36-17-5e, was good for 6,000,000 feet with 1,000 pounds rock pressure at 2,450 feet, and the same company's No. 10 Rhymes-England gauged a similar amount but with 600 pounds rock pressure at 2,450 feet.

Two small pumpers were completed in the Zwolle, Sabine Parish, chalk rock field. Loring Oil Co.'s No. 12 Bowman-Hicks, Section 33-8-12, is pumping 12 bbls. daily at 2,650 feet from chalk rock. On the north edge of the townsite producing part of the field, W. D. Perritt's No. 1 Elliott in Section 30-8-12 is a 5-bbl. pumper at a depth of 2,356 feet. J. P. Evans' No. 1 Crichton Co., Section 31-18-8w, a wildcat in Webster Parish, was abandoned as a salt water hole at 2,690 feet.

ARKANSAS

Arkansas, aside from the developments in Champagnolle and Smackover, was quiet during the week. Cosden Oil Co.'s No. 1 Doniphan, a wildcat in Section 19-9-10, Cleburne County, was junked at depth of 4,360 feet after an unsuccessful fishing job for tools. Columbia County will get another test, J. W. Olvey having rig up for No. 1 Kate George, NW SW Section 19-18-20.

The Miller County wildcat area, where a small producer was completed last summer and where there has been some drilling since, secured another test during the week when Bullock Oil Co. erected derrick for No. 1 Hervey, SE NE Section 33-14-26. In the same district E. & F. Oil Co., after testing 500 bbls. of salt water and 10 bbls. of heavy oil about 12 gravity at 2,804 feet in No. 1 E. L. Beck, Section 36-15-26, is coring at 2,810 feet. East Texas Oil & Gas Co.'s No. 1 Harvey, Section 2-15-26, is waiting orders after

(Continued on Page 125)

LOUISIANA-ARKANSAS PROVEN AREAS

(Rotary operations unless otherwise designated.)

NORTH LOUISIANA

BOSSIER PARISH—BELLEVUE

La. Oil Ref. Corp.'s No. 13-B Bodcaw, 330 ft. S, 400 ft. W, NE cor. SE SW, Sec. 11-19-11.....Fishing 2,028 ft.
H. I. Morgan's No. 10-B Kendrick, 1,720 ft. E, 1,120 ft. N, SW cor., Sec. 22-19-11.....Rig up.

BOSSIER PARISH—CARTERVILLE

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11.....Hole full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.
Palmer Corp.'s No. 2 Roberson, 330 ft. N, 330 ft. E, SW cor. NW NE, Sec. 26-23-12.....Derrick.
The Texas Co.'s No. 1 Pine Wood Lbr. Co., 1,650 ft. S, 300 ft. E, NW cor., Sec. 25-23-12.....Fishing D.S; T.D. 3,066 ft.
The Texas Co.'s No. 16 Wilkinson, 330 ft. N, 330 ft. E, SW NE, Sec. 36-23-13.....Cmtd. 6⅝-in. 3,138 ft.
Tippett Drlg. Co.'s No. 3 Holmes, 330 ft. N, 330 ft. E, SW cor. NE NW, Sec. 36-23-12.....300 ft. oil in hole; waiting on power; T.D. 3,130 ft.

BOSSIER PARISH—ELM GROVE

R. O. Roy's No. 1 Hunter, 660 ft. N, 660 ft. E, SW cor., Sec. 24-16-11.....Drlg. chalk 1,200 ft.

BOSSIER PARISH—SLIGO

La. G. & F. Co.'s No. 3 Jeter, 4,650 ft. W, 660 ft. S, NE cor., Sec. 24-17-12.....Cmtd. 12½-in. 230 ft; fishing 1,425 ft.
Woodley Pet. Co.'s No. 3 Harris, 247 ft. E, 660 ft. N, SW cor. SE NE, Sec. 14-17-12.....Drlg. 65 ft.
Woodley Pet. Co.'s No. 4 Harris, 247 ft. E, 440 ft. N, SW cor. SE NE, Sec. 14-17-12.....Location.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16.....Location.
Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,810 ft. S, 970 ft. E, NW cor., Sec. 17-16-16.....Location.

(Continued on Page 121)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated.)

NORTH LOUISIANA

AVOYLLES PARISH

Company, farm, location—	Remarks—
Gas-Con Oil Corp.'s No. 1 Morrow (no check), Sec. 14-2s-4e	S.D. 3,657 ft.
R. E. Tippett's No. 1 Chateline, NE NE, Sec. 34-1n-3e	Cored S.W. sand 3,140-47 ft; S.D. 3,410 ft.

BIENVILLE PARISH

Carter & Dobbs' No. 1 White, 330 ft. N, 330 ft. W, SE cor. SE SE, Sec. 9-18-6	Drlg. lime 1,875 ft.
Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8	Derrick.
W. A. Nichols et al's No. 1 McDermott, 660 ft. S, 660 ft. W, NE cor. NE NE, Sec. 28-18-6	Cored sandy shale 2,937 ft.
S. P. Borden's No. 1 Thomas, 330 ft. S, 330 ft. E, NW cor., Sec. 27-16-9	Reaming to set 7-in; T.D. 4,042 ft.
Olds & Smith's No. 1 Brice, 330 ft. N, 330 ft. E, SW cor. SE SE, Sec. 15-18-6	Arranging D.S. test 2,203 ft; sandy shale 1,546 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	1,000 ft. S.W. and show oil; arranging to deepen.
Autrey Oil Co.'s No. 1 Johnson, 1,120 ft. N, 200 ft. E, SW cor. NW, Sec. 34-19-11	S.D. 60 ft.
Autrey Oil Co.'s No. 1 Mcdade, 200 ft. S, 200 ft. E, C, Sec. 28-19-11	Cored lime 2,752 ft.

CADDO PARISH

Tex.-La. Prod. Co.'s No. 1 French, 1,270 ft. N, 675 ft. E, SW cor. NW, Sec. 34-23-16	Drlg. shale 3,220 ft.
Tex.-La. Prod. Co.'s No. 1 Wall, 2,715 ft. N, 1,980 ft. W, SE cor., Sec. 33-23-16	Drlg. chalk 2,051 ft.

CALDWELL PARISH

Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,012 ft.

(Continued on Page 120)

Your own topped crude can put you beyond the reach of price comparisons

Not infrequently neighboring filling stations are offering reductions of a fraction of a cent a gallon to passing motorists. A reduction in price means a reduction in profit in any man's language.

The motorist does not want to save a tenth of a cent a gallon. He wants day-in-day-out top hand efficiency from his high compression motor—and he will pay reasonably high to get it.

You can take your antiknock gasoline out of the price cutting—and you can do it economically.

The Pratt Cracking Process—using your own topped crude—will manufacture a natural high antiknock blending fluid. It does it at the refinery—closest to home and easiest controlled. The fluid—blended on an equal basis with your straight run gasoline—will make a uniform high antiknock gasoline that can ignore the roadside tenth of a penny saving opportunities. A demonstration unit for the production of the Pratt Antiknock Blending fluid is in continuous operation and—of course is as open as a public park for your inspection.

The Automotive Distillate Corporation

Licensors of the Pratt Vapor Phase Cracking Process

Continental Life Bldg.,

ST. LOUIS, MO.

California's Largest Well Since 1923

Elwood Producer Brought in Flowing 15,035 Bbls. State's Potential at Least 1,100,000 Bbls. Daily.

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Oct. 25.—Although crude oil curtailment has been a very important factor in California during the past year, overproduction is just as much apparent today as at any time in the past, notwithstanding that current production is substantially below previous peaks. As a matter of fact, California's potential production at present exceeds the record peak of 1923 when Long Beach, Santa Fe Springs and Huntington Beach were undergoing simultaneous development. The present situation is even more critical because of the greatly superior quality of crude oil and enormous production of natural gasoline which has been found in the Kettleman Hills and Belridge Fields. This includes a daily potential of 75,000 bbls. for Kettleman Hills, notwithstanding that the present Kettleman agreement does not expire until July 1, 1931.

Including Kettleman Hills' rated potential, California could produce at least 1,100,000 bbls. per day with everything wide open and recent developments tend to indicate that the State's production would be further increased within a short time if the oil could be absorbed, by additional development at North Belridge and Lost Hills. Current production has been averaging around 590,000 bbls. per day for several weeks. In addition to this, there are 5,725 wells with a potential production of 310,000 bbls. per day completely shut in. This gives California a conservative potential of approximately 900,000 bbls. per day, exclusive of Kettleman Hills, which is not included in the shut-in production of 300,000 bbls. per day. In addition to this conservative potential of approximately 900,000 bbls. per day, there is an additional curtailment of about 200,000 bbls. per day effected by pinching in production through the use of smaller flow nipples. It will be noted that the potential production of California of 1,100,000 bbls. per day mentioned is somewhat below a similar figure established by the California Fact Finding Committee, composed of production engineers of the various larger companies. This disparity does not indicate any divergence of opinion as the difference between these two figures represents a safety factor which, in this instance, might be called utra conservative.

Estimating Potential

Every so often the potentials established by the Fact Finding Committee are subjected to criticism as being excessive but this has been unwarranted. The term potential production is rather elastic and unless the same method of compilation is used a different result will always be secured. In one or two instances differences have been noted but in the case of these fields factors unknown to the general public have of necessity been used. Ventura Avenue might be cited to illustrate this point. Because of the high gas oil ratio characteristic of wells in this field, extreme care must be exercised to minimize the possibility of irreparably damaging producing wells. This made it necessary when the open flow test was conducted early this year to produce only about 50 per cent of the wells to the maximum degree as a complete flow test of the entire field would have required a period of 30 days to adjust pressures and then another month getting the wells back to the allowable production. Some assumed that because Ventura Avenue did not double its daily production on this flow test that its subsequent rated potential was excessive.

Those not in close touch with curtailment work also lose sight of the fact many times that California wells after being shut down for several years come back on production producing more oil than the amount they were making at the time of suspension. The Shell Oil Co.'s properties in the Coalinga Field containing 375 wells have been shut in for several years as a curtailment measure. At the time of suspension these wells were producing 16,000 bbls. per day but it is quite probable that due to equalization within the reservoir these wells will produce in excess of 20,000 bbls. per day when production is resumed. A number of years ago a similar situation existed when labor troubles forced a general shutdown in San Joaquin Valley fields and in almost every instance the properties affected registered increased production upon the resumption of work. This is but one of several instances where similar results will prevail. In the Brea Olinda Field of Orange County, the Union Oil Co. repressured its Stearns lease a few years ago and, while the potential of this lease is only carried on the books at 5,000 bbls. per day, production tests have indicated it will do well in excess of 10,000 bbls. Wells on this property which, before being shut down, were previously pumping 150 bbls. per day, have run as high as 2,500 bbls. on a number of 24-hour production tests conducted since oil and gas injection was concluded.

Based on Five-Day Tests

It is the consensus among operators and field men with conditions prevailing throughout the United States that California's rated potential more nearly represents actual conditions than anywhere else. This is due perhaps to the fact that the potential production of fields in California is based on five-day flow tests instead of being predicated on a flush flow test of a few hours' duration. To indicate the effectiveness of curtailment work in California, attention might well be called to the fact that approximately 37 per cent of the total number of wells in California are completely shut in. At the close of September there were 9,543 wells producing and 5,725 wells completely shut down in conformity with statewide curtailment. In addition to the wells shut down 100 per cent, many others are being pumped only during daylight hours and others are being pinched back by using smaller flow nipples.

Current production in California is approximately 40,000 bbls. per day above the allowable of 550,000 bbls. established several weeks ago as the economic limit of production by the operators general committee on curtailment. This excess does not represent any general relaxation in curtailment work but can be attributed to conditions beyond control. Kettleman Hills is responsible for approximately 10,000 bbls. of this daily excess, and, while this might be reduced, operators are rather reluctant to jeopardize the status of these high-pressure wells, some of which show casing pressures in excess of 3,000 pounds. The Playa Del Rey Field of Los Angeles Basin, which has not been brought into the curtailment set-up because of the danger of never getting these wells back on production, accounts for another 20,000 bbls. of the daily excess. Long Beach, Santa Fe Springs, Huntington Beach and Ventura Avenue all have minor excesses above the allowable maximum.

During the month of September, California operators produced 599,477 bbls. of crude oil per day, compared with 605,499 bbls. during the preceding month, August, and 870,142 bbls. daily in September of last year. Santa Fe Springs and Long Beach headed the production list during September with daily averages of 101,957 bbls. and 100,418 bbls., respectively. Both of these fields registered declines from the daily output recorded during the previous month. Kern River, Mount Poso, Midway-Sunset, Elk Hills, Coalinga, Santa Maria, Elwood, Ventura Avenue, Huntington Beach, Inglewood, Seal Beach and several other fields all registered declines in production due to curtailment work and a normal decline in production. Playa Del Rey increased from 12,333 bbls. per day in August to 19,384 bbls. daily in September, while Kettleman Hills during the same period increased from 13,413 bbls. per day to 22,027 bbls. That curtailment work in California is accomplishing considerable good is evidenced by the fact that producers and refiners reduced stocks of crude and refined oils 789,838 bbls. during September. Heavy crude during this period declined 472,231 bbls.; gasoline, 353,362 bbls.; naphtha distillates, 195,572 bbls., and other fluid stocks, 273,143 bbls. Light refinable crude oil, due to curtailment of refining operations which resulted in a smaller run to stills, increased 504,470 bbls.

Elwood

The Pacific Western Oil Co. finished an exceptionally large well in the prolific Elwood Field of Santa Barbara County when well No. 6 on Tideland permit No. 92 was brought in flowing 15,035 bbls. per day from 3,516 feet. This new well, 1,400 feet beyond the shore line in the open ocean, is the largest well finished in California since 1923 when a number of large producers were finished in the Long Beach and Santa Fe Springs Fields. To cope with this new well and at the same time keep its production down to the allowable maximum, the Pacific Western's field department found it necessary to shut in all of the company's other wells in this field. No. 6 was beaned down yesterday, and, although the Pacific Western anticipated the completion several weeks ago and accordingly created a deficit in production, the other wells on this lease will nevertheless remain off production until any present surplus production is eliminated.

Caissons have already been sunk for two more wells still farther out from the shore on this lease and actual drilling work should be under way shortly. The most distant of these two wells to be drilled by the Pacific Western will be almost one-half a mile from the high tide line. The Pacific Western's new well is the forty-ninth successful completion to be finished by operators in the prolific Elwood Field, but a check indicates that two additional potential producers will be tanking oil in the near future. These two new wells are No. 7 Doty of the Barnsdall and Rio Grande and the Bankline Oil Co.'s well No. 7 on Tideland permit No. 89, both of which are in the oil sand at the present time. There were no new wells finished at Ventura, although several are being prepared for early production tests. In the Santa Barbara Mesa Field, the Valmont Oil Co. started rig construction for No. 1 Beckstead and has staked an additional location for another well on the Rogers lease, a short distance away from its recent successful completion in this area.

Playa Del Rey

Daily production of the Playa Del Rey Field registered an increase due to the completion of new wells, the aggregate output of which exceeded the normal decline in previous completions. The Ohio Oil Co., discoverer of the Playa Del Rey Field, added two new wells to its list of producers by completing No. 1-H flowing 740 bbls. of 23.4 gravity oil per day from 4,560 feet and No. 1-I doing 430 bbls. of oil and 2,300,000 feet of natural gas per day from 4,626 feet. The former was finished with a 5¾-inch liner carrying 1,066 feet of perforated, while the latter was completed with a 6⅝-inch liner including 1,124 feet of perforated. The Elmer Oil Co. chalked up a nice well when its No. 5 Venice was completed in the deep Recreation zone flowing 1,670 bbls. of clean 23.4 gravity oil and 1,300,000 feet of natural gas from 5,810 feet.

The California Northern Oil Co., which failed to develop substantial production in Nos. 1 and 2 on the Lindblade property, made up for lost time by completing No. 5 Venice flowing 1,160 bbls. initially from the upper, or Del Rey zone. The Nelson Petroleum Co.'s No. 2 Venice, also finished in the upper zone, was brought in flowing 912 bbls. initially from 4,116 feet. The first well this company finished several weeks ago died early this

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

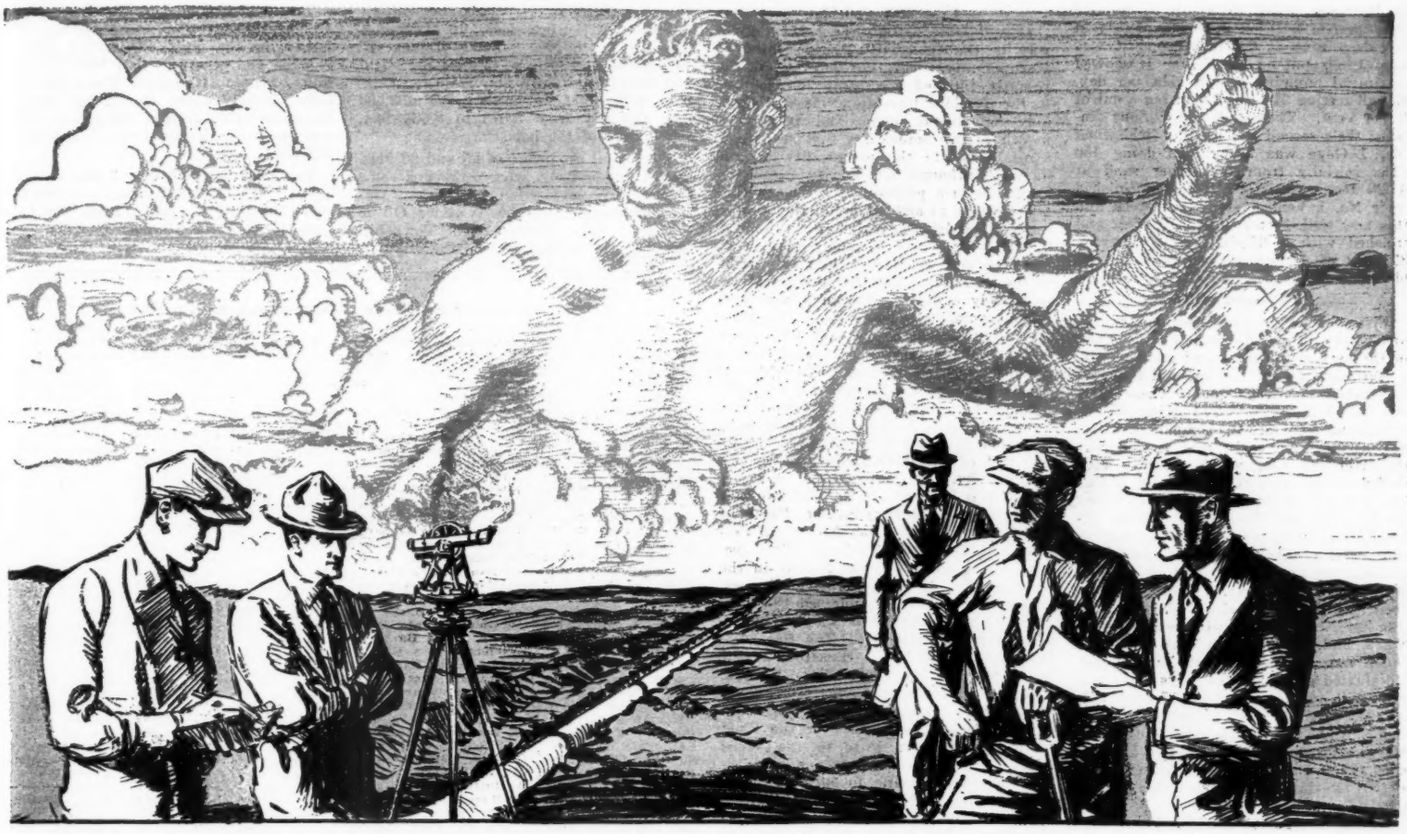
Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	68,690	997,259
Fuel oil	.....	.....	.....	.....	71,950	457,175
Diesel and gas oil	140,727	20,104	77,835	11,119	2,811,080	1,957,588
Gasoline	420,403	60,058	484,500	69,214	16,023,804	16,671,969
Kerosene	.....	.....	.....	.....	.....	49,750
Naphtha distillate	.....	.....	.....	.....	.....	81,750
Coastwise—						
Crude oil	366,280	52,326	387,500	55,357	12,785,013	22,258,515
Fuel oil	364,427	52,061	370,252	52,893	14,349,391	15,712,396
Diesel and gas oil	71,341	10,192	7,332	1,047	1,366,955	991,409
Gasoline	150,142	21,449	221,376	31,625	10,185,913	8,867,173
Kerosene	.....	.....	.....	.....	149,256	69,509
Exports—						
Crude oil	143,402	20,486	8,999	1,286	5,528,484	4,706,074
Fuel oil	327,782	46,683	149,249	21,321	14,522,704	15,077,601
Diesel and gas oil	228,523	32,646	34,712	7,959	3,809,444	2,104,237
Gasoline	286,362	40,909	362,934	51,991	13,181,959	9,603,803
Kerosene	51,675	7,382	49,360	7,051	3,085,709	2,698,903
Lubricants	.....	.....	.....	.....	27,434	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	279,088	.....
Gasoline	.....	.....	.....	.....	1,008,757	1,905,037
Lubricants	.....	.....	.....	.....	24,774	138,706
Coastwise—						
Fuel oil	82,005	11,715	8,101	1,157	2,746,972	2,627,753
Diesel and gas oil	34,456	4,922	.....	.....	310,222	359,058
Gasoline	230,823	32,975	60,120	8,574	3,631,937	4,081,908
Kerosene	10,843	1,549	.....	.....	190,269	144,445
Exports—						
Crude oil	.....	.....	.....	.....	59,993	121,603
Fuel oil	.....	.....	.....	.....	809,316	778,606
Diesel and gas oil	.....	.....	.....	.....	457,589	326,657
Gasoline	90,177	12,882	84,680	12,097	3,406,476	4,457,702
Kerosene	8,512	1,216	1,810	259	567,170	528,060
Lubricants	.....	.....	.....	.....	33,579	25,713

ONE OF A SERIES OF ADVERTISEMENTS OF THE HOPE ENGINEERING COMPANY

WHEN THE GENIE AWAKES



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WHEN the magic touch of modern business has awakened the Genie, Natural Gas, there still remains the problem of harnessing and directing and utilizing his might—turning it to effort productive of useful heat and power and of increased wealth.

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AMERICAN INDUSTRY NEEDS MORE NATURAL GAS

week and work has already been started to revive it. York & Smullin, with one well pumping 250 bbls. per day from 4,002 feet, successfully finished No. 2 Del Rey at 4,580 feet and incidentally increased their daily production 694 bbls. The Todd Oil Co.'s No. 1 Del Rey, finished at 4,509 feet, was brought in flowing 555 bbls. initially, the oil testing 23.3° and showing a cut of 2 per cent. Clarke & Brunwin failed to secure a natural flow in No. 2 Beem upon completion in the deep zone at 6,201 feet and it was accordingly put on the beam. It showed an initial pumping of 148 bbls. per day, the oil testing 21.1° and showing a cut of 5 per cent. Thomas Kelly & Sons finished their second well in this field when No. 1 Gage was brought in doing 450 bbls. initially from the upper sand at 4,528 feet. Crawford & Gilkie finished their No. 1 Venice late in the week and this new well, bottomed at 4,018 feet and finished with a 6⅝-inch liner carrying 301 feet of perforated, was good for 400 bbls. per day.

Kettleman Hills

Five new wells are scheduled to get under way in the Kettleman Hills Field in the very near future and another, No. 2 Huffman of the Superior, will probably be started within 30 days. These wells are in addition to No. 1 King of the Union and Amerada Oil companies, which was spudded in early this week. The Richfield Oil Co., which recently concluded a deal with the Signal Oil & Gas Co., has already started rig construction for its first well located in Section 36-21-17. The North American Consolidated, another new entrant into this field, has material on ground for its first test on the Blauvelt property. The Petroleum Securities has just about finished rigging up No. 3 Felix, 640 feet south of No. 2, and drilling operations should be under way within 10 days. The Standard started grading a few days ago for a new well in Section 29-21-17 and this project, No. 85, will probably be well under way within 15 days. On the Whepley property, the Associated has finished the foundation for No. 2 and is expected to start rig construction immediately.

During September $114,928 were distributed to 24 wells which have been finished in the North Dome and subsequently shut in as a curtailment measure. The distribution of this sum, representing 25 per cent of the value of oil produced during the month, gave each well approximately $4,788. The standard, with 13 wells standing suspended on top of the pay, received $57,464, the balance being distributed among other companies, including the Associated, Bolsa Chica, General Petroleum, George F. Getty Oil Co., Milham Exploration, Pacific Western, Shell and Continental. The amount distributed during September was considerably lower than the previous distribution, which aggregated $161,614. The money disbursed during September did not contain any voluntary contribution from the Superior Oil Co., as this company's producer is on fee acreage and is therefore not amenable to the provisions of the Kettleman Hills agreement.

Lost Hills-Belridge

Considerable activity is getting under way in the Lost Hills-Belridge area of Kern County, where the Belridge Oil Co. recently finished a substantial producer in the Temblor formation. It will probably be several weeks and perhaps a month or two before any further data is available as to the potentiality of this district, although the Richfield Oil Co. should be in a position some time within a few weeks to make a production test of its No. 1 Belridge, located in Section 22-27-20, a little over a mile northwest of the deep zone discovery along the strike of the structure. The General Petroleum is already drilling ahead in a new well in this area, and, while the Ohio, Associated, Standard, Texas and Union are not yet in a position to start actual drilling, they should begin making hole soon. The General Petroleum tested No. 2 More, a gas well in the Goleta area of Santa Barbara County, and this well, bottomed at 4,340 feet, produced 8,000,000 feet of gas during the 24-hour production test.

The Standard Oil Co. finished two new wells in the Midway-Sunset Field of Kern County. One was No. 68 in Section 5-11-23 in the Maricopa Flats section, while the other was No. 67 in the older section of the field. The former, bottomed at 2,197 feet, pumped 185 bbls. initially, while the latter was a 124-bbl. pumper from 4,190 feet. The Barnsdall Oil Co. finished No. 4 Hazelton, a new well in the Maricopa Flats section, pumping 130 bbls. of clean 22.7 gravity oil initially from 3,336 feet. The Mohawk Oil Co. has taken over the Shell Oil Co.'s Wharton lease in the Weed Patch area of Kern County and preparations are being made to initiate immediate drilling. The Shell is still drilling ahead in No. 1 Porter-Day, the hole being down 5,725 feet a day or two ago. The second well on this lease is being rigged up and drilling should get under way within 10 days.

Long Beach

The Chiksan Oil Co. finished No. 1 Walters, a new well in the Long Beach Field of Los Angeles Basin, doing 495 bbls. of clean 26.1 gravity oil daily from 5,460 feet. The Vesta Petroleum Co., which recently finished No. 4 Signal, concluded drilling operations on No. 5

(Continued on Page 125)

THREE FAIR PRODUCERS COMPLETED IN ISABELLA COUNTY, MICHIGAN

By Paul A. Elliott

MUSKEGON, Mich., Oct. 25.—A new producer which proved to be the largest of three successful oil wells in Isabella Township, Isabella County, was brought in near Leaton this week by Gibson, Johnson & Borden, Inc., of Muskegon. The new well, No. 1 Peter Mahon, SE SE, Section 24-15n-4w, is good for about 150 bbls. initial daily flow from the Dundee. Limestone was encountered at 3,604 feet and pay from 3,643 to 3,664 feet, the bottom of the hole.

Two small producers of 25 and 30 bbls. initial, respectively, were completed some months ago in Section 25-15n-4w, Isabella Township, by the Wittmer Oil & Gas Co. Two other Isabella Township tests, one in Section 10 and the other in Section 27, were dry at 4,020 and 3,788 feet, respectively. They were J. O. Duryee's No. 1 Johnson I. Bullard and Mellon-Pollock Oil Co.'s No. 1 Zingery.

Two wells which had struck oil in the Dundee last week were completed. The larger is the Stork Oil Co.'s No. 2 Sawade and others, S half SW SE, Section 2-14n-3w, Chippewa Township, Isabella County, which topped the Dundee limestone at 3,521 feet, the pay at 3,551 feet and was completed at 3,570 feet for 225 bbls.

The Pure Oil Co.'s No. 1 Burrows and others, SE NW SE, Section 3-14n-3w, also Chippewa Township, made 200 bbls. after topping the Dundee at 3,520 feet,

(Continued on Page 125)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status—
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	6,464	fishing
Prairie Oil Co., No. 1 Lompoc, Santa Barbara Co.	15- 7-35	5,625	suspended
Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	5,590	sd. sh. drilling
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	4,030	sd. sh. drilling
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	5,000	sd. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-33	1,301	sd. sh. drilling
General Pet., No. 1 Goleta, Santa Barbara Co	21- 4-28	4,533	shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	flowing gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	2,461	cleaning out
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,485	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 142 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	2,914	sd. sh. drilling
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	4,070	br. sh. drilling
Johnson, George, No. 1 Goleta, Santa Barbara Co.	X- 4-28	3,970	cleaning out
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	5,500	suspended
Pacifc Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Prairie Oil & Gas Co., 1 Ventura, Ventura Co.	30- 3-22	7,518	cemented
Rio Grande, No. 1 Lankershim, Ventura Co.	13- 4-19	1,820	cleaning out
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,360	testing
California Republic, No. 1 Sespe, Ventura Co.	23- 4-21	rig	rigging up
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	1,995	sd. sh. drilling
Lockwood Valley Oil Co., Well No. 1, Ventura Co.	32- 8-21	210	sd. drilling
Nordon Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	5,065	redrilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	1,450	sd. sh. drilling
General Pet., No. 1 Belridge, Kern Co.	30-28-21	1,070	sd. sh. drilling
The Texas Co., No. 1 Belridge, Kern Co.	22-27-20	mtl.	building rig
Richfield, No. 1 Belridge, Kern Co.	20-27-20	5,194	sd. sh drilling
Standard, No. 1 Belridge, Kern Co.	31-27-20	mtl.	building rig
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	mtl.	building rig
Union, No. 1 Belridge, Kern Co.	27-28-20	....	location
Rio Grande, No. 1 Belridge, Kern Co.	18-28-22	3,680	suspended
Reward Oil Co., No. 1 Belridge, Kern Co.	34-27-20	mtl.	building rig
Shell, No. 3 Belridge, Kern Co.	24-28-20	940	sd. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	3,810	hd. sd. drilling
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,720	deepening
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	rig	rigging up
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	mtl.	building rig
Pet. Sec, No. 1 Edison, Kern Co.	14-29-29	3,580	redrilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,220	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,050	sd. sh. drilling
Shell, No. 1 Semitropic, Kern Co.	17-27-23	6,960	hd. sd. drilling
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	710	hd. sd. drilling
Meridan Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,560	hd. sd. drilling
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	1,190	suspended
Bardeen, H. A., No. 2 San Emidio, Kern Co.	10-10-23	4,177	hd. sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	4,400	br. sh. drilling
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	1,096	sd. sh. drilling
Petroleum Securities, No. 3 Huron, Fresno Co.	28-20-16	....	location
Carruthers Oil Co., No. 1 Fresno, Fresno Co.	4-17-20	mtl.	foundation
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	4,019	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,525	suspended
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,941	suspended
Continental, No. 1 San Miguel, San Luis Obispo Co.	26-25-11	rig	rigging up
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	880	sd. sh. drilling
Pismo Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,004	br. sh. drilling
Fremans Pet., No. 1 Pismo, San Luis Obispo Co.	13-32-13	....	foundation
Standard, No. 1 King City, Monterey Co.	23-22- 7	5,680	fishing
Brown, F. A., No. 1 Parkfield, Monterey Co.	15-23-14	760	sd. sh. drilling
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Murphy Oil Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	rig	rigging up
Friend & Fiske, No. 1 Tulare Lake, Kings Co.	11-23-19	1,050	sd. sh. drilling
Knudsen & Smith, No. 1 Reef Ridge, Kings Co.	36-23-17	mtl.	suspended
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,940	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	4,842	sd. sh. drilling
Orinda Pet., Well No. 1 Contra Costa Co.	32- 1- 3	732	hd. sd. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,495	suspended
Campbell Oil Co., No. 1 Porterville, Tulare Co.	22-22-27	857	suspended
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	918	suspended
Western Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	1,022	testing
Mills & Wilson, No. 1 Porterville, Tulare Co.	35-22-27	913	recemented
Cummings Pet., No. 1 Porterville, Tulare Co.	27-22-27	1,170	suspended
Jennings Synd., No. 1 Poterville, Tulare Co.	8-23-28	510	suspended
Terra Bella Drlg. Co., No. 2 Porterville, Tulare Co.	34-22-27	920	recemented
Terra Bella Drlg. Co., No. 3 Porterville, Tulare Co.	23 22-27	896	sd. sh. drilling
Jaques Oil Co., No. 1 Porterville, Tulare Co.	34-22-27	914	suspended
Rayatt Oil Co., No. 1 Porterville, Tulare Co.	34-22-27	1,090	suspended
Hallock, William, No. 1 Porterville, Tulare Co.	34-22-27	1,090	suspended
Kern Pet. Co., No. 1 Porterville, Tulare Co.	34-22-27	1,168	sd. sh. drilling
Miller & Sylvan, No. 1 Porterville, Tulare Co.	11-23-27	684	sd. sh. drilling
Larson Oil Co., No. 1 Porterville, Tulare Co.	11-23-27	1,020	sd. sh. drilling
Larson Oil Co., No. 2 Porterville, Tulare Co.	11-23-27	124	sd. sh. drilling
Kettleman Trust, No. 1 Porterville, Tulare Co.	21-22-27	780	sd. sh. drilling
Lewis, Paul M., No. 1 Porterville, Tulare Co.	15-22-27	1,118	plugging back
Turk & Campbell, No. 1 Porterville, Tulare Co.	34-22-27	1,296	sd. sh. drilling
Roetner Oil Co., No. 1 Porterville, Tulare Co.	34-22-27	801	sd. sh. drilling
Wells & Armstrong, No. 1 Porterville, Tulare Co.	10-22-27	210	suspended
Dennis Oil Co., No. 1 Porterville, Tulare Co.	29-23-28	590	hd. sd. drilling
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	754	hd. sd. drilling
Getty Oil Co., No. 1 Nigger Heaven, Yolo Co.	23-12- 3	2,050	rig cable tools

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Union, No. 1 Orchard Dale, Los Angeles Co.	10- 3-11	5,550	sd. sh. drilling
Olympic Realty Corp., No. 1 Venice, Los Angeles Co.	14- 2-15	3,694	fishing
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520	cleaning out
Francis, Don, No. 1 Compton, Los Angeles Co.	8- 3-13	572	suspended
Central Oil Co., No. 1 Compton, Los Angeles Co.	28- 3-13	5,094	suspended
Combs, E., No. 1 Compton, Los Angeles Co.	16- 3-13	692	cleaning out
Guajome Oil Co., No. 1 El Nido, Los Angeles Co.	33- 3-14	rig	suspended
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,396	cleaning out
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co.	31- 3-14	2,070	sd. sh. drilling
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665	suspended
McKeon Drlg. Co., No. 1 Watts, Los Angeles Co.	1- 3-14	300	suspended
Rio Grande Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	6,295	suspended
Tenacity Oil Co., No. 1 Dominguez, Los Angeles Co.	11- 4-13	8,580	suspended
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	5,460	hd. sd. drilling
Rio Hondo Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	3,726	pump test
Rucker & Smith, No. 2 Puente, Los Angeles Co.	27- 2-10	rig	rigging up
Bardeen Pet., No. 2 Puente, Los Angeles Co.	2- 2-10	mtl.	foundation
Bidart Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	2,895	recemented
Keck & Hail, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,120	gas—shut in
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,060	br. sh. drilling
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	rig	portable equip.
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co.	25- 1-12	5,278	suspended
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,960	sd. sh. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,695	fishing
Union, No. 1 Coyote Sansinena, Los Angeles Co.	30- 2-10	5,050	br. sh. drilling
Western Gulf, No. 1 Brea Canyon, Los Angeles Co.	28- 2- 9	6,840	hd. sd. drilling
Lamona Oil Co., No. 1 Pomona, Los Angeles Co.	34- 1- 9	965	hd. sd. drilling
Graham & Loftus, No. 1 Coyote, Orange Co.	18- 3- 9	6,733	testing
Nesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	2,530	hd. sd. drilling
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	1,010	suspended
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	suspended
Imperial Valley Oil Co., No. 1 Brawley, Imperial Co.	36-11-10	3,240	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,265	cleaning out
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	4,160	gr. sd. drilling
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	4,615	reaming
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,390	hd. sd. drilling
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	1,549	suspended
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	rig	rigging up

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Chicago, Illinois

Dubbs Cracking Process
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Snapped in the Oil Fields by The Journal's Cameras

1—Officials of Pure Oil Co. in the Van Field, East Central Texas; left to right: O. W. Keener, B. A. Walker and B. W. Strickland. Bottom row, left to right: W. L. McCarty, C. A. Lawrence, R. Makin and Roy R. Douglas, gasoline department. 2—R. C. E. Dougherty, Kent Kirkman and H. B. Thomson, Pure Oil Co., Van Field. 3—Left to right: L. E. Lewis, production superintendent, Pure Oil Co., Van, Tex.; Carl Short, driller of discovery well in Van Field; and R. S. Lee, Texhoma Aeronautical Co., Fort Worth, Tex. 4—Bottom row, left to right: Dean Hanes, Noel Russell, L. D. Campbell, A. L. Dempsey, John Sharp, R. F. Askins, and John Dotson. Standing, left to right: Ben F. Saye, A. D. Stoddard, Irene Ray, Eva Hunn, Gwendolyn Long, Margaret Kelley, Gladys Roberson, John Halliburton and H. C. Gloeckler. Top row: C. P. Parsons and H. T. Crain, Halliburton Oil Well Cementing Co. 5—Picture taken at Gulf Production Co. meeting of field foremen in charge of various operating branches in West Texas, at the company's J. T. McElroy camp in Crane County. 6—G. C. Hatfield, Louisville Refining Co., Louisville, Ky. 7—J. E. Gardner, Gulf Pipe Line Co., Fort Worth, Tex. 8—E. C. Yokley, J. W. Johnston, W. M. Crumpler, Earl Burgin, and William Whitlington, Noble Drilling Co.

Western Crane Discovery Drops Off

Interesting Showings to the South and in Ector County Test. Big Lake Pool Makes New Record in Production

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Oct. 27.—Two areas in West Texas which have been exceedingly interesting during the past two weeks have been slowly ebbing in interest, one because of its apparent lack of increase in production while drilling deeper after picking up a deep pay, and the other because it has been shut down while running tubing and erecting storage tanks.

Cranfill Brothers and Gulf Production Co.'s No. 1 Tubbs, in Section 8, Block B-27, on the western side of Crane County, astonished everyone about a month ago when it topped a deep pay at 4,302 feet and flowed 100 bbls. in five minutes, but later only 1,051 bbls. in 24 hours before deepening was commenced. The first head made it look good for 25,000 bbls. per day, but many believe it will make only a small well when cleaned out and put on production. Nothing has been reported on pipe line arrangements for the well, but the Gulf Pipe Line Co. will probably lay a line from its tank farm at Monahans in Ward County or from its line which runs about 18 miles to the north in Ector County, from Monahans to Ranger, if the well merits the building such a line. If it is only a small well the Shell Pipe Line Co. which has a line within about three-quarters of a mile of the well may connect to it, and effect an exchange of oil with the Gulf Production Co. in some other area. The well is now drilling below 4,415 feet in lime without any apparent change. A caving hole is causing some trouble. Gas increased at 4,395 feet.

Showing of Oil

Cranfill Brothers and Atlantic Oil Producing Co.'s No. 1 Muir, in Section 23, Block B-27, 2½ miles south of the above mentioned well, is drilling below 3,400 feet in lime. It encountered a showing of oil at 2,698-2,705 feet in lime and a showing of gas at 3,352 feet which was exhausted. This well will be closely watched to see how it is running in comparison with the discovery well to the north.

H. F. Wurtz' No. 1 E. A. Ibbetson and others, in the NW, Section 16, Block 46, G.M.M.B.&A. Survey, in the southwestern part of Ector County, approximately 14 miles northwest of the Cranfill Brothers and Gulf Production Co.'s No. 1 Tubbs discovery in Crane County, picked up a showing of gas at 2,410 feet this week, many being of the opinion that this gas showing correlates with gas showings in the discovery to the south. Elevation of the test is 2,808 feet.

Prairie Oil & Gas Co.'s No. 1 Johnson, in the SW cor. NE, Section 16, Block 74, one-quarter mile north of Atlantic Oil Producing Co. and Maxwell's No. 1 Daugherty, in the Leck area, came in making 150 bbls. of pipe line oil the first hour from pay topped at 2,135 feet. It was shut down at 3,140 feet but declined rapidly, and during the first 15 hours flowed only 950 bbls. of oil and 3,000 bbls. of sulphur water. Tubing has been run to cut down the water column, but no report has been received since the tubing was run. When the well came in the flow of Atlantic Oil Producing Co. and Maxwell's No. 1 Daugherty fell off, but running tubing in the new well will no doubt help bring back the first to its original status.

Andrews County

The three wells of the Deep Rock Oil Co. in central Andrews County, produced a total of 3,930 bbls. during September, producing as follows: No. 1 Ogden (the discovery well), 3,164 bbls.; No. 1 Mathis, 390 bbls.; and No. 1 King, 376 bbls. The oil is going to storage.

Fuhrman Petroleum Co.'s No. 1 W. T. Ford, in Section 16, Block A-43, Andrews County, about 6 miles southeast of the Deep Rock Oil Co.'s producers, which created an unlimited amount of excitement about six weeks ago, also seems to have been relegated to the noninteresting files. It has been shut down for a month, waiting on storage. It looks good for about 125 bbls. per day. Total depth is 4,563 feet.

King Ranch Well

Gulf Production Co.'s semiwildcat on the King Ranch, on the northeastern side of the old McCamey Pool, which was reported last week as topping the pay at 2,693 feet and swabbing 2½ bbls. per hour while shut down at 2,716 feet, was shot this week with 130 quarts from 2,693-2,742 feet after it was deepened to 2,753 feet. It made a head and cleaned itself after the shot, but failed to continue the flow, swabbing 15 bbls. the first 12 hours after the shot. It is now being cleaned out, and will probably be put on pump if it fails to flow after being thoroughly cleaned. It is in Section 28, Block 2, M.K.&T. Survey, about 2 miles from production, thereby proving more potential producing acreage for this old pool which has not seen any drilling for a long time.

Texas Pacific Coal & Oil Co.'s No. 1 Barker in Section 27, Block B-29, midway between the Shipley and Bennett pools, southeastern Ward County, has been shut down to run tubing and erect storage. Total depth is 2,425 feet, and top of the pay was logged at 2,256 feet. On October 25 it flowed 130 bbls. proving an extension and possible connecting link between the two producing areas, or opening up another separate producing area in this section of Ward County.

New Big Lake Record

A new producing record was set by the seven deep producers in the Big Lake Field, Reagan County, the total output for the best day running up to 14,427 bbls., the production of the various wells running as follows: Big Lake Oil Co.'s No. 1-C University, 1,370 bbls.; same company's No. 2-C University, 2,483 bbls.; same company's No. 3-C University, 179 bbls.; and No. 4-C 3,723 bbls. The last named well came in with the largest initial production of any deep well yet completed in the field, making an initial of 3,240 bbls. with over 51,000,000 feet of gas, and gaining gradually in production every day, now making about 500 bbls. per day more than when brought in. Texon Oil & Land Co.'s No. 1-B University, made 2,877 bbls., its No. 2-B making 2,025 bbls. and it No. 3-B 1,770 bbls. The first named well of the Texon Oil & Land Co. was the deep discovery well of the field.

The expiration of the present six month's proration period for the Hendricks Field, Winkler County, ends on November 5, 1930, and the operators and advisory committee of this field will no doubt petition the Railroad Commission for an extension of proration for another six months.

Reports from McCamey, Upton County, state that the Humble Oil & Refining Co. is discontinuing operation of its cracking plant, indefinitely, at that place. This shutdown follows the cut in prices in North Texas and the Panhandle districts, and bears out the company's statement that it has been taking more oil than it desired in the various districts. This plant has a daily cracking capacity of 16,000 bbls.

The Richardson Refining Co. has also shut down its refinery at Big Springs. This plant has a daily capacity of 7,500 bbls.

COMPLETIONS IN WEST TEXAS

Glasscock County

Lion Oil & Refining Co.'s No. 2 R. C. Coffee, top pay 2,238 feet, increase 2,265 feet, initial production on proration test 1,000 bbls., total depth 2,303 feet.

Irion County

Crawford and others' No. 1 J. M. Nutt, temporarily abandoned 1,105 feet.

Pecos County

Cardinal Oil Co.'s No. 10 Mrs. F. E. Forborg, top pay 309 feet, initial production 25 bbls., total depth 367 feet. Dixie Oil Co.'s No. 1 J. H. Tippett, top pay 395 feet, initial production 20 bbls. per day, total depth 398 feet. Magnolia Petroleum Co.'s No. 1 L. L. Byrne, top pay 1,349 feet, shot 50 quarts 1,346-74 feet, initial production 10 bbls. per day, total depth 1,390 feet.

Tom Green County

D. W. Wiley and others' No. 1 Ed Maier, dry and abandoned, total depth 815 feet.

WEST TEXAS PRODUCTION

Week Ending October 25

County—	No. wells	Bbls.
Andrews	2	35
Crane	368	26,720
Crockett	49	1,756
Ector	70	7,310
Fisher	8	1,874
Garza	..	27
Howard-Glasscock	528	30,472
Irion	7	126
Jones	73	1,384
Loving	30	2,630
Mitchell	148	2,164
Pecos	507	105,760
Reagan	253	23,385
Runnells	3	10
Scurry	5	10
Taylor	3	117
Upton	251	7,375
Ward	44	4,070
Winkler	591	59,922
Total production this week		275,147
Total production last week		282,965
Decrease		7,818

RUNS THROUGH TRUNK LINES

Company, size, location—	Bbls.
Atlantic, 10", Houston	23,971
Gulf, 10", Ranger	42,211
Humble, 2" and 8", San Angelo	42,030
Humble, 10" and 12", Station "A"	52,013
Illinois, 2" and 8", Del Rio	30,097
Magnolia, 8", De Leon	22,744
Pasotex, 8", El Paso	12,207
Shell, 10", Healdton	35,269
Shell, 10", Houston	25,519
Texas, 12", Houston	12,840
Total	298,901

RUNS TO WEST TEXAS REFINERIES

	Bbls.
Amarillo Refg. Co., Pyote	....
Big Spring Refg. Co., Big Spring	1,453
Burford Refg. Co., Pecos	3,202
Blue Bonnet Refg. Co., Wickett	....
Cosden Refg. Co., Big Spring	11,316
Col-Tex Refg. Co., Colorado	7,000
Great Western Refg. Co., Big Spring	2,783
Humble O. & R. Co., McCamey	....
Richardson Refg. Co., Big Spring	1,226
Tonkawa Refg. Co., Pyote	....
Wickett Refg. Co., Wickett	170
Total	27,150

TANK CAR SHIPMENTS

	Bbls.
T. P. Coal & Oil Co., from Hurdle	1,462
Fox & Thorsen, from Mertzon	120
Thomas & Brann, from Grant City	150
Regan County Pur. Co., from Texon	390
Orient from Hurdle	50
South. C. O. P. Co. from Wickett	18,944
Total	21,016
Total daily average distribution	347,067
Total daily average production (including Lea County, N. Mex.)	316,628
Daily average from storage	31,039

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended October 27

Company, well, farm name, section and block—	Remarks—
ANDREWS COUNTY	
Fuhrman Pet. Corp.'s No. 1 Ford, 440 ft. from S and 2,200 ft. from W of Sec. 16, Blk. A-43, Public School Land	Flowing 25 bbls. per day pinched; total depth 4,559 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,593 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,510 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles S of Alpine	Shut down 1,750 ft.
CONCHO COUNTY	
Beesley et al's No. 1 S. Waring Est., 1,320 ft. from S and E of A. T. Robinson Sur., Abst. 2,120	Spudded and shut down.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,720 ft.
CRANE COUNTY	
Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Drlg. 4,375 ft.; making 2,500,000 ft. gas and 25 bbls. oil per day.
Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W, Sec. 23, Blk. B-27, Public School Land	Drlg. 3,115 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
Magnolia Pet. Co.'s No. 2 Hoover, 2,310 ft. from S and 335 ft. from E of Sec. 2, Blk. FF, B.&B. Sur.	Swabbing and bailing 6 bbls. oil per day; total depth 2,056 ft.
CULBERSON COUNTY	
Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E, Sec. 20, Blk. 89, Public School Land	Shut down 1,520 ft.; show oil 1,400-15 ft.
Kornrumpt et al's No. 1 Garren, 330 ft. S and W, Sec. 16, Blk. 79, Public School Land	Cleaning out 1,025 ft.
DAWSON COUNTY	
Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	Standard rig.
ECTOR COUNTY	
C. P. Davis et al's No. 1 Hendricks, C SW Sec. 46, Blk. 42, Twp. 3s, T.&P. Sur.	Shut down 4,475 ft.
H. F. Wurtz' No. 1 E. A. Ibbetson et al. 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Drlg. 2,440 ft.
Simms Oil Co. et al's No. 4 University, 1,650 ft. from S and 1,320 ft. from E of Sec. 1, Blk. 35	Drlg. 3,720 ft.; top pay 3,525 ft.; flowing 200 bbls. per day.

(Continued on Page 109)

Texas Commission May Seek Law Test

Hearing of North Texas Operators at Austin. Purchasers Asked to Make Nominations for Requirements

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Oct. 27.—While advisory committees, operators from the various districts, and interested parties met with the Railroad Commission at Austin this week to discuss proration, the Panhandle district came through with a 5,680-bbl. daily increase over the past week, while the Wichita Falls district made only 132 bbls. per day increase.

Many Wichita Falls operators attended the meeting at Austin. Pat Neff, head of the Railroad Commission, said he would take under advisement and see what the commission could do to equalize the purchase of oil between the different districts. Mr. Neff asked all purchasers in this district to make nominations showing their requirements for a 60-day period beginning November 25, and requested these figures be supplied David Donoghue, technical advisor to the Central Proration Committee, not later than November 3.

Mr. Neff asked why there was no market for the oil produced in the Wichita Falls district. The Prairie Oil & Gas Co. and Humble Oil & Refining Co. testified that they have no market for crude oil from this district, and are continuing to purchase it only to relieve a bad situation.

During the proration meeting at Austin it was brought out that 112 wells in the Panhandle district are not running oil into any line and that half of these do not have any pipe line connection, or are not connected to any gathering system. H. J. Cochran, proration umpire of this district, stated that there are 16 pipe lines and purchasers in the district but that only 4 were taking any free oil. The Texas Company accepts 9,200 bbls. daily of which 8,000 bbls. is controlled oil; Prairie Oil & Gas Co. takes 13,000 bbls. daily, of which 2,000 bbls. is controlled oil; Humble Oil & Refining Co. takes 12,000 bbls. daily, of which 7,500 bbls. is controlled oil. The Toronto Pipe Line Co. takes 3,700 bbls. daily, 370 bbls. of which is controlled oil.

May Test Law

The Railroad Commission may take steps to bring relief to the unconnected wells by invoking the pipe line law to force purchasers in the district to connect with these wells. Court action will probably be instituted seeking to force purchasers to take the amount of oil allowed the district by the general proration committee, thereby giving relief to many wells which have lacked connections. But attempting to force a purchaser to take what it does not want will bring up a big problem, and will cause a great legal battle, which will prove whether the pipe line law is powerful enough to bring about general proration.

Another well was completed in the Jacobs area of southeastern Cooke County in the Wichita Falls district when W. B. Hamilton and others' No. 1 Jacobs, located 200 feet from the south and west of their 40-acre lease, which is the west 40 acres of the south 80 acres of the north 121 acres of the Jacobs land in the John Strickland Survey, Abstract 92, topped a broken sandy lime from 1,525-34 feet and a black sand from 1,534-53 feet, shutting down at 1,553 feet, pumping 160 bbls. for an initial production. It is now shut in for pipe line connections which may be furnished by the Simms Oil Co. if its test in this area proves a producer. A line may be laid by this company to a point on the railroad near Pilot Point, and the production shipped to the Simms Oil Co.'s refinery in West Dallas.

Western Coleman Well

The Texas-American Syndicate's No. 3 Newton, in Section 1, San Augustin University lands, No. 519, western Coleman County, has changed the appearance of this gas-producing area since it came in for an estimated 400-bbl. 42 gravity oil well with 4,500,000 feet of gas. Sandy lime was logged from 3,820-45 feet, in the Gardner series. It is now making 250 bbls. per day on a three-quarters-inch choke. The gassers producing in this area produce from sand which correlates with the Gray sand, consequently this new producer is somewhat different, and may prove the area having good oil potentialities. The Oklahoma Natural Gas Corp. takes the gas from wells in the area.

The Arcadia Refining Co.'s No. 1 Golson, in the Burkett area, has produced a total of 8,500 bbls., the well flowing 117 bbls. per day through one-sixteenth-inch choke with 140 pounds back pressure. The company has purchased a 55,000-bbl. tank and has erected it to handle the production, as the well has no connection. This is an extension well of the Burkett Pool, and came in about six weeks ago proving more acreage good for production in the pool.

Western Gray Sale

Graham-Cree and Hoover's No. 1 Sullivan, and accompanying acreage was sold to the Dale Oil & Refining Co. for a reported price of $400,000, part in oil and part in cash.

This is the discovery well of western Gray County, in Section 136, Block 3, I.&G.N. Survey, and is located on a 40-acre lease belonging to the owners who made the discovery. The well opened up a new area to potential production, and started considerable activity around it, other nearby leases bringing good prices since the discovery was made. J. T. Harrell, Albert Crenshaw, D. G. Gray and W. C. Duncan were named as the purchasers for the Dale Oil & Refining Co.

COMPLETIONS IN WICHITA FALLS DISTRICT

Archer County

Dean and Alexander's No. 1 Green, dry and abandoned, total depth 1,161 feet. A. Minnich's No. 1 Abercrombie, dry and abandoned, total depth 1,183 feet. M. Stainforth's No. 1 Threst, dry and abandoned, total depth 1,165 feet. C. E. Starr and others' No. 1 Pace, oil sand 1,197-1,200 feet initial production 12 bbls. oil and 10 bbls. salt water, total depth 1,200 feet.

Cooke County

W. B. Hamilton and others' No. 1 Jacobs, oil sand 1,534-46 feet, initial production 168 bbls., total depth 1,553 feet.

Jack County

Panhandle Refining Co.'s No. 3 Leffel, show oil 3,120-40 feet, dry and abandoned, total depth 3,420 feet.

Throckmorton County

Seitz, Comegys and Seitz No. 2 McKeichan, show oil 430-43 feet, dry and abandoned, total depth 794 feet.

Wichita County

R. R. Clark and others' No. 1 A. Cabe, dry and abandoned, total depth 2,060 feet.

Young County

Consolidated Oil Company of Texas No. 1 Barry, dry and abandoned, total depth 1,253 feet. N. D. Goldsmith's No. 1 Klenk, dry and abandoned, total depth 1,151 feet. W. H. Hammon's No. 1 Jeffery, dry and abandoned, total depth 853 feet. Jacob Oil and Gas Co.'s No. 1 Finch, dry and abandoned, total depth 866 feet. Maer and Hamilton's No. 1 Jeffery, oil sand 812-27½ feet, initial production 205 bbls., total depth 827½ feet.

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Empire Gas & Fuel Oil Co.'s No. 1 McConnell, initial production 47,000,000 feet of gas from 2,494-2,580 feet, total depth 2,583 feet. Gulf Production Co.'s No. 3 Block, top pay 3,010-25 feet, shot 290 quarts 3,000-63 feet, initial production 250 bbls.; total depth 3,063 feet. Hutchinson County Drilling Co.'s No. 3 Percival, top pay 3,277 feet, initial production 100 bbls., total depth 3,279 feet. Shamrock Oil & Gas Co.'s No. 1 Duncan, total depth 3,435 feet, plugged back to 2,990 feet, initial production 12,000,000 feet of gas from 2,835-2,900 feet. Stubblefield and others' No. 2 Cooper, shot 270 quarts 3,017-75 feet, initial production 125 bbls., total depth 3,078 feet.

Gray County

British-American Oil & Production Co.'s No. 4 Smith, top pay 3,184 feet, shot 150 quarts 3,181-3,234 feet, initial production 250 bbls. in 12 hours, total depth 3,246 feet. Operators Royalty & Production Co.'s No. 4 Harrah, shot 70 quarts 3,130-3,200 feet, initial production 350 bbls., total depth 3,224 feet.

Hutchinson County

Gulf Production Co.'s No. 2-A Sandford, total depth 3,169 feet, plugged back to 3,112 feet, shot 40 quarts 3,065-81 feet, temporarily abandoned.

Moore County

Gulf Production Co.'s No. 1 Kilgore, top pay 2,610-3,060 feet, initial production 4,000,000 feet of gas, and 415 pounds back pressure, total depth 3,645 feet.

NORTH TEXAS PRODUCTION
Week Ending October 25

Panhandle district—	
Carson County	6,684
Hutchinson County	22,305
Gray County	55,770
Moore County	617
Potter County	None
Wheeler County	540
Total production this week	85,916
Total production last week	80,236
Increase	5,680
Wichita Falls district—	
Archer County	14,415
Baylor County	950
Clay County	641
Cooke County	3,231
Foard County	144
Jack County	2,300
Haskell County	39
Montague County	6,280
Throckmorton County	750
Wilbarger County	16,900
Wichita County	23,375
Young County	11,480
Total production this week	80,505
Total production last week	80,373
Increase	132
Ranger district—	
Brown County	5,480
Callahan County	2,960
Coleman County	2,625
Comanche County	1,099
Palo Pinto County	505
Eastland County	4,386
Shackelford County	5,605
Stephens County	5,386
Total production this week	28,046
Total production last week	27,912
Increase	134

COMPLETIONS IN RANGER DISTRICT

Brown County

Beasley and others' No. 1 Ehrke, dry and abandoned, total depth 2,324 feet.

Callahan County

Bradstreet and Holden's No. 1 Wilson, dry and abandoned, total depth 1,729 feet.

Coleman County

F. A. Lane's No. 1 Baker, dry and abandoned, total depth 1,703 feet. Whitesides and others' No. 1 Henderson, dry and abandoned, total depth 1,660 feet.

(Continued on Page 105)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending October 27

CARSON COUNTY

Company, well, farm name, section and block— Remarks—

Empire G. & F. Co.'s No. 1 Jordan et al, C SE, Sec. 94, Blk. 4, I.&G.N. Sur. ..... Spudded.
Empire G. & F. Co.'s No. 1 Simms, 2,310 ft. N, 990 ft. E, N½, Sec. 12, Blk. 7, I.&G.N. Sur. ..... Drlg. 1,170 ft.
Gibson Oil Corp.'s No. 1 Foster & Co., C NW, Sec. 24, Blk. 7, I.&G.N. Sur. ..... Rigging up.
Hagy & Harrington's No. 1 McConnell, C NW, Sec. 45, Blk. 4, I.&G.N. Sur. ..... Rotary rig.
Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur. ..... Drlg. 800 ft.
North American Oil Co.'s No. 1 Burnett, C SE, Sec. 93, Blk. 4, I.&G.N. Sur. ..... Drlg. 2,040 ft.
North American O. & G. Co.'s No. 1 McEwen, C SE, Sec. 1, Blk. 4, I.&G.N. Sur. ..... Rigging up.
Texas Interstate P. L. Co.'s No. 1 Burnett, C W 100 ac., SW, Sec. 84, Blk. 5, I.&G.N. Sur. ..... Rotary rig.

CHILDRESS COUNTY

C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ..... T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. ..... S.D. 300 ft.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. N, 985 ft. E, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... T.D. 3,006 ft; contract depth.

GRAY COUNTY

Amalgamated German-American Oil Co.'s No. 1 Webb, 330 ft. S and W, E½ NW, Sec. 12, Blk. A-9, H.&G.N. Sur. ..... Drlg. 2,810 ft.
British-American Oil Co. and Shell Pet. Corp.'s No. 1 Smith, 330 ft. S and E, NW, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Location.
British-American Oil Co. and Shell Pet. Corp.'s No. 1 Richardson, 330 ft. N and W, E½, Sec. 127, Blk. 3, I.&G.N. Sur. ..... S.D. 3,290 ft; shot with 90 qts. from 3,196-3,241 ft; to reshoot.
British-American and Shell Pet. Corp.'s No. 2 Richardson, 330 ft. NE W½ NE, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,770 ft.
Beck's No. 1 Sullivan, 330 ft. N and E, W½ NW, Sec. 135, Blk. 3, I.&G.N. Sur. ..... Drlg. 670 ft.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ..... Spudded and S.D.
Cockrell-McIlroy's No. 2 Allam, 330 ft. N and W, E½ NE, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,915 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Harbaugh, 1,363 ft. N, 330 ft. W, Lot 182, Sec. 114, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,230 ft.
Cree & Hoover's No. 1 Wright, 330 ft. N, 1,000 ft. E. Sec. 12, Blk. 3, I.&G.N. Sur. ..... Location.
Empire G. & F. Co.'s No. 1 McCullough, 1,320 ft. S, 886 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Location.
Kewanee O. & G. Co.'s No. 3 Arnold, 330 ft. N and E, SE, Sec. 149, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,775 ft.

(Continued on Page 108)

Pipe Line Construction News

LOS ANGELES TO GET GAS FROM ELWOOD FIELD

LOS ANGELES, Calif., Oct. 25.—Los Angeles is to receive natural gas from Elwood Terrace Field commencing November 14. Rio Grande and Barnsdall Oil companies have signed a contract with Southern Counties Gas Co., a subsidiary of Pacific Lighting Corp., calling for delivery for 10 years. The volume varies during the first three years from a minimum of approximately 2,590,000,000 feet to 3,626,000,000 feet the third year and throughout the remainder of the contract.

The territory which is to consume this gas includes Santa Maria, Lompoc, Santa Barbara, Ventura and Los Angeles basin. The potential natural gas market around Santa Barbara is 5,500,000 feet a day and the remainder is to be consumed by Los Angeles.

A complete network of pipe lines connects all the cities mentioned, but the connecting link between Santa Barbara and Ventura is of insufficient diameter to carry the load to be turned into the two bigger lines at Ventura. To that end Southern Counties Gas Co. is constructing, from Goleta to Ventura, a 32½-mile pipe line of 16-inch diameter at an estimated cost of $620,000.

Rio Grande handles approximately 40,000,000 feet of gas daily at Elwood, of which 70 per cent is from wells of the Rio Grande and Barnsdall Oil companies. It is anticipated by officials that actual consumption of Elwood natural gas in territories to be served will average several million feet a day above the minimum load required to be delivered to the gas company under the provisions of the contract.

COMPLETE MISSISSIPPI LINE

Natural gas has been turned into the new pipe line extending from Greenville to Greenwood, Miss., according to statement of D. C. Shaffer, general manager of Memphis Natural Gas Co. Work on the new line, through which Memphis Natural Gas Co. expects to market approximately a billion feet of natural gas annually, was started August 20. Tapping the company's main 18-inch pipe line extending from the Monroe Field of Louisiana to Memphis, Tenn., 210 miles away, the new lateral will supply gas to the towns of Leland, Indianola, Morehead, Ittabens, Greenwood and North Greenwood, Miss.

Actual building operations were carried out by Phoenix Utility Co., construction unit of Mississippi Power & Light Co. Part of the cost of the line was borne by Memphis Natural Gas Co. and part by Mississippi Power & Light Co. Distribution systems in the various communities will be constructed and operated by Mississippi Power & Light Co., which is one of the companies operated under supervision of Electric Bond & Share Co.

PROTEST GAS LINE PROJECT

CHATHAM, Ontario, Oct. 25.—Strong opposition to the proposal to pipe Alberta waste gas to the Saskatchewan cities has come from the Alberta coal operators' conference held recently in Calgary. The coal operators claim that the supplying of natural gas to these cities will deprive them of important markets for Alberta coal.

LINE TO REPRESSURING PLANT

The Oklahoma Natural Gas Corp. will begin work about November 15 on construction of a 12-inch gas line 13½ miles long from the Oklahoma City Field to the Philokla repressuring plant in the NE cor. NW SW, Section 32-11-2.

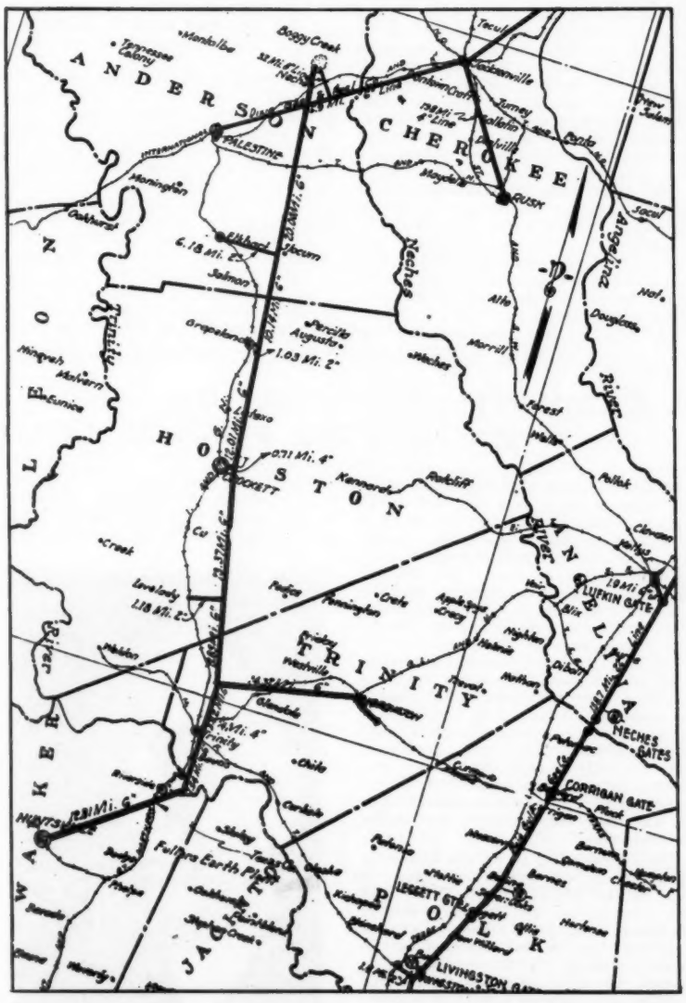
MAKING GOOD PROGRESS ON GAS PIPE LINE

HOUSTON, Tex., Oct. 27.—Pointing toward completion by January 1, United Gas System reports satisfactory progress on construction of its 100-mile Boggy Creek-Huntsville 6-inch pipe line extension in Anderson, Houston, Trinity and Walker Counties, East Central Texas. Distribution stations along this extension will be established to serve domestic, commercial and industrial consumers at Huntsville, Riverside, Trinity, Groveton, Lovelady, Crockett, Grapeland and Elkhart.

From the Boggy Creek Field, which now serves the Jacksonville-Rusk-Palestine line of the Dixie Gas & Fuel Co., a United Gas unit, a 6-inch pipe line will run 20 miles to a point near Slocum, where a 6.18-mile 2-inch line will run west to Elkhart. The 6-inch main line will continue south 10.14 miles to a point 1.03 miles east of Grapeland, which is to be served by a 2-inch line, and thence 12.01 miles to a point 0.71 mile east of Crockett. From the 4-inch Crockett junction the 6-inch line will run 13.37 miles to the point of intersection with the 1.18-mile 2-inch line which runs west into Lovelady.

At a point 8.9 miles south of the Lovelady junction the 6-inch line will go south 3.82 miles to serve Trinity and east 14.32 miles to supply Groveton. From Trinity the main line continues 7.54 miles south to Riverside and in a southwesterly direction 12.81 miles to the terminus in Huntsville.

The Boggy Creek Field on the Anderson-Cherokee County line is an inland salt dome being developed by the Humble Oil & Refining Co., which disposes of its gas production to the United Gas System



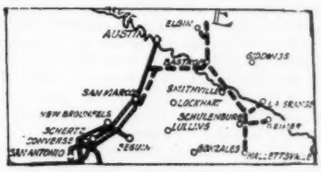
Map of new gas line being laid by United Gas system to transport gas from the Boggy Creek Field 100 miles southward across East Central Texas.

AJAX MOVES OFFICE

The Ajax Pipe Line Co., organized a few months ago to build a twin 10-inch pipe line from the Glenn Pool, in Oklahoma, to Alton, Ill., will move its general offices from Tulsa to the Landers Building, Springfield, Mo. The company has been maintaining an office in the Kennedy Building in Tulsa, and the president of the company, H. S. Austin, states the new offices will be centrally located about midway on the line. All the river crossings are completed and the work is progressing in a satisfactory manner. The first station was tested during the week at Pryor, Okla., and the two 10-inch lines are fully completed to Afton, Mo.

TEXAS GAS LINE WILL BE EXTENDED 110 MILES

HOUSTON, Tex., Oct. 27.—The United Pipe Line Corp. has announced the Smithville project of the United Gas



Dotted line shows Smithville gas line project of United Pipe Line Corp., indicating connections with main system from Southwest Texas fields.

System which will add approximately 110 miles of pipe line to the company's transmission system and will serve six Texas municipalities in Travis, Bastrop, Lee, Fayette and Lavaca Counties. Preliminary surveys have been completed and other preparatory work is now under way.

The new line will utilize several sizes of pipe including 12¾-inch, 10¾-inch, 8-inch, 6-inch, 4-inch and 2-inch. It will travel from a point about 15 miles south of Austin known as the Buda Gate on the 12-inch line from San Antonio to Austin of the Southern Gas Co., a unit of the United Gas System. The line will run 27 miles in a northeasterly direction to a point 8 miles southwest of Butler in Bastrop County. A tie-in at Butler will supply extensive brick kilns at that point. From this point the line will move 25 miles southeast to a point near the Bastrop-Fayette County line from where it will have a 4.6-mile tie-in line to Smithville.

The line then will continue 13½ miles to the La Grange branch, thence 13½ miles to the Schulenberg and Weimar takeoff. Sixteen miles of 4-inch pipe into Halletsville will complete this project.

COMPLETE KETTLEMAN BUTTONWILLOW LINE

LOS ANGELES, Calif., Oct. 27.—Completion of the main 750-mile natural gas pipe line system of Pacific Gas & Electric Co. from the Kettleman Hills and Buttonwillow oil fields to 20 counties of central and northern California, at a cost of $27,000,000, is announced by P. M. Downing, vice president and general manager of the company.

This construction achievement, he said, represents an investment of $27,000,000. The 750-mile network was built with an eye on the future and can be extended, if demands warrant it, without even testing its capacity. As a matter of fact, the company is even now considering several branch lines in the Sacramento Valley and elsewhere.

With the major construction completed, the P.G.&E. has begun extending its 6,000-mile distribution system to make natural gas more easily available to factories and homes. The total bill for these extensions will run into several hundred thousand dollars and will keep hundreds of men at work. As an example of the scope of the second phase of the natural gas program, the company is spending $250,000 for a new 16-inch main in San Francisco, which runs 7 miles through an important industrial section of the city.

The present network, which sets a world record for natural gas development, was commenced in February and comprises besides the first pipe line to the San Francisco Bay district, a 230-mile feeder called the coast line, a 200-mile feeder called the valley line, the latter a 26, 24 and 22-inch line, and a 50-mile feeder from Kettleman to Buttonwillow which connects the coast and valley lines.

Safeguards in Cracking Operations

Potential Hazards and Precautions Necessary. Danger From Water, Vapor, Welding and Corrosion of Equipment*

By E. M. Matson
Universal Oil Products Co.

Perhaps the most important hazard in cracking operations is water. The element of danger from this source lies in its sudden and almost instantaneous expansion into steam when subjected to the temperatures normally employed in a cracking unit, this expansion and the resultant pressure being quite likely to be beyond the usual unloading capacity of safety valves with which the plant is equipped and hence subjecting the equipment to possible rupture.

It is appreciated that water may or may not be dangerous depending upon how and when the water is put into the unit and how the unit is operated. However, the limits within which a unit may be operated safely with water in the unit or in the charging stock are so narrow that the possibility of wrong operation under such conditions makes it a dangerous element. Therefore, the safest and smoothest operation can only be secured by excluding water at any and all times. Precautions therefore must be taken to prevent it from being delivered to the process as well as to withdraw such water as may reach it, from low points in the process into which it may accumulate.

So far as is known water may be introduced into a unit in any one of the ways as shown in the accompanying chart.

Possible Sources of Water

Charging Stock Tanks—Leaky roofs, open hatches, leaky steam coils.

Condensation of steam and water used during cooling and cleaning period.

With refluxing material during operation.

With special ram pump stocks.

Misoperation or leaky steam and water connections to the unit.

Leaky distributor condenser or residuum cooler coils.

Leaky, or broken, or misoperated swing connections in tanks from which stock is delivered to charging tanks.

Use of tanks not regularly assigned to cracking plant service.

Leaky cooler box coils.

Contamination with water laden slops and trap skimmings.

Emulsions.

Stock recirculated from cracking unit during warming up period from break-up of emulsions, and misoperation or leaky steam and water connections.

Use of transfer or general service pumps for charging units.

As precautions against the introduction of water to the process from any and all of the sources shown in the foregoing the following may be cited:

1. That after an emergency or forced shutdown, if the unit has been steamed or water cooled, the system be completely drained.

2. That the danger from water being charged to a unit be eliminated by the installation of at least two or more charging stock tanks, each having a capacity equal to at least a 72-hour supply.

3. That no charging stock be charged to a unit until it has settled at least 24 hours and the tanks thieved and drained of any water accumulations.

4. That in thieving tanks standard thief be used.

5. That in draining tanks the drain valve shall not be opened more than one-quarter of full opening to avoid false indication due to vortexing.

6. That charging stock shall not be contaminated with slops, with skimmings or other water ladened oils unless these have been previously settled in special tanks and dehydrated.

7. That still bottoms and charging stock from foreign plants be settled out in auxiliary settling tanks for at least 24 hours before being delivered to the charging stock tank.

8. That such auxiliary settling tanks be thieved and drained of any water accumulations before transferring to the charging stock tanks.

9. That no charging stock be charged to a charging stock tank from which operating units are being supplied.

10. That recirculation from a unit being placed in service be to a recirculation stock tank and not to the regular charging stock tanks.

11. That charging stock tanks shall have water tight roofs, manhole and gauge hole batches closed, independent suction connection to suction line of charging pumps, suction connection attached to the side of tank at least 4 feet above the bottom, and without extension, on the inside, of any kind; steam coil for heating shall be made up well, preferably of welded construction, and provided with substantial supports at frequent intervals; the filling connection shall be independent of the connection to the suction line and preferably on the opposite side of the tank.

12. That when the accumulation of b.s. in charging stock tank reaches a height of 18 inches the tank should be cleaned.

13. That the steam coil be drained and water drawn from the charging stock tanks by one of the crew of cracking plant when coming on duty.

14. That suction connections for ram pumps be from the suction header of the charging pumps.

15. That if a special stock must be used for ram pump the ram pump suction be connected as for charging stock tanks and the same inspection and supervision be applied to such ram pump stock tanks.

16. That the distillate receiver be examined for water and if necessary drained periodically if distillate is returned to plant as a refluxing medium.

17. That all valves in steam connections to the unit be inspected rigidly for condition and tightness.

18. That condenser and cooler coils be examined for tightness, during each run.

19. That an independent filling pump be provided for filling the unit. (Using filling pumps for other services or general utility pumps for filling may prove dangerous.)

20. That surge lines of surge type hot oil pumps be tried for water after charging at least hourly until unit is on stream.

21. That emulsified stocks running 1.0 per cent or more of water content be dehydrated before charged to unit.

A detailed investigation of individual plants may disclose further sources of water. We have merely attempted here to show some of the sources to point out the possibilities for its introduction into the units as well as their safeguards.

To further preclude any danger from water in spite of the precautions which may be taken as indicated in the foregoing, low parts, or pockets, of the unit should be drained at frequent intervals for the withdrawal of water which might possibly accumulate therein until the temperature in that part of the unit is above the vaporization point of water consistent with the pressure in the unit prevailing at the time. If the operation of the unit is such that recirculation of oil is employed during the starting up period of the run the drawoff connection shall be at the lowest point in that part of the plant from which the oil is being withdrawn. Furthermore, this recirculation should be continued until the temperature and pressure conditions are proof that water as a liquid is no longer present. This temperature, it must be remembered, is not the boiling point of water at atmospheric pressure (212° F.) but as referred to before will vary with the pressure on the system at the time, as well as with the character of the stock with respect to emulsions and the temperature required for their breakup.

Vapors and Gases

Hydrocarbon vapors and gases may be dangerous both from a standpoint of inflammability and toxicity. In the former instance precaution must be taken with respect to their presence:

(a) In the system at the start of a run.

(b) In the system during repairs and inspections.

(c) About the process area and in the trenches.

(d) In receiver, pump house, control houses, and other such enclosures.

With respect to their toxicity we are concerned primarily with items (b), (c) and (d).

The only danger in the presence of air in the system at the start of a run lies first in its admixture with vapors at sufficiently elevated temperatures and in the proper proportions to produce spontaneous or self-ignition and second in its admixture with vapors and their contact with glowing pyrophoric iron sulphide scale or glowing carbon which in this instance provides the source of ignition. In either event an explosion or fire may result, the character and extent of which will depend upon relative air and vapor proportions of the mixture, the total vapor volume and the confinement of the expansion of the combustion products. It is obvious that certain precautions must be taken during the starting up period to avoid the possible ignition of air vapor mixtures.

The expulsion of air from the system may be accomplished in various ways. For instance:

1. By cold liquid displacement.
2. By displacement of liquid during which time the liquid is being heated.
3. By displacement with vapors evolved by heating the oil charged to the system.
4. By vapor or gas introduced from an extraneous source.

It is obvious that the safest and most foolproof method that can be used for the displacement of air is by cold liquid.

The other methods either may or do produce air-vapor or air-gas mixtures. The source of ignition of all of them may be provided by pyrogenetic action of iron sulphide scale or glowing coke from a previous run.

The methods involving the warming or heating of the liquid may produce temperatures of vapor sufficient for self-ignition brought about by operating irregularities, inattention to duties, and carelessness.

It is realized, of course, that all of these methods may be used safely and without accident for considerable periods of time before a combination of circumstances may arise to produce any ill effects. A knowledge of the following facts may be instrumental in avoiding, to a

(Continued on Page 164)

*Continued from The Oil and Gas Journal, October 23.

R. A. GRIFFITH, PRESIDENT OF SINCLAIR OIL & GAS CO., DEAD

Richard Asbury Griffith, president of the Sinclair Oil & Gas Co., died at 10 o'clock Friday evening, October 24, in a New York hospital, where he was receiving treatment for heart trouble. He had been ill about one year. Mr. Griffith suffered a very severe illness of pneumonia, and it left him in a weakened condition, with a badly affected heart. He received treatment in his home city of Tulsa and also at Johns Hopkins Hospital in Baltimore. He spent the summer in a quiet Minnesota resort, returning home in the early fall, seemingly in better health and strong enough to make trips to his office for a short time each day. Recently he grew worse and it was decided to send him to New York for treatment by a noted heart specialist, but he was there only a short time before the end came.

"Berry" Griffith, as he was known to his intimates, was one of the ablest oil men in the Mid-Continent Field. He had been in the oil business since he graduated from high school. Born in Bradford, Pa., he was educated in the public schools of that city and before he reached the age of 20 was in the field as a driller and later as a drilling contractor, his earliest activity being in the Roulette gas field in Potter County. The late Lewis Emery, Jr., placed him in charge of the operations of the Bradford Gas Co. in Potter County and he was in that position when the Oil Well Supply Co. prevailed upon him to go to its Oklahoma headquarters in Tulsa. He remained with the company until the Continental Supply Co. made him district manager in the Mid-Continent territory. In 1916 H. F. Sinclair, looking around for good material to man his new oil company, engaged Mr. Griffith and for a time he acted as an assistant to the president and later was made vice president in charge of operations, a position he held several years after which he was put at the head of the Sinclair Oil &

R. A. Griffith

Gas Co., which became one of the largest producing companies in the United States. The Sinclair company was a big producer in Burbank, Seminole and Oklahoma City. Griffith saw the possibilities of Burbank before a well was drilled in that field and purchased for small sums leases that afterwards proved to

(Continued on Page 108)

Geology of Gas Fields of New York

Intensive Development and Expansion in Natural Gas Transportation Revives Interest in Old Areas

By Paul D. Torrey*

In the United States natural gas was first used as a fuel and for illuminating purposes in New York, but it has only been within recent years that this State's rapidly expanding markets combined with the inability of the present known producing fields to meet the demand, has attracted the attention of many large utility companies. The past gas production of New York is estimated to have been approximately 300,000,000,000 feet, but notwithstanding the excellent record of production from several fields, the available supply has not been adequate to meet the demand, and in consequence much gas is imported each year from Pennsylvania to be mixed in part with artificial gas derived from coal and oil. Many cities of considerable size are still unsupplied with natural gas, and although the retail distributors in such places may look with some disfavor upon the substitution of natural gas for artificial gas, it is rather unlikely that the owners of a new gas field will have difficulty in finding markets. In general wholesale prices for natural gas have been sufficiently favorable to encourage exploration, and there is an additional incentive, in that the densely populated areas along the Atlantic Seaboard are fully capable of absorbing any gas that may be produced in excess of local requirements. The attitude of the New York Public Service Commission has been rather favorable to gas producing companies and it is probable that a utility company might be forced to substitute natural gas for artificial gas in the interest of the public welfare, if it could be proven that sufficient natural gas was available to warrant the change. This has been done in the past, notwithstanding the open hostility encountered from the distributing companies toward the introduction of natural gas.

Of Interest to Geologists

Not only are the potential markets of New York and New England attractive to the gas companies but to the geologist employed in the study of the occurrence of natural gas, the State of New York affords many interesting areas for study. Perhaps nowhere in the world are the middle Palaeozoic beds better developed and certainly in no region have they been studied with greater thoroughness and care than has marked the work of such pioneers as Hall, Vanuxem and Emmons. The work of these men along with the subsequent investigations of Clarke, Grabau, Hartnagel, Rudemann and others have established the New York section of rocks as a standard for comparison that is unequaled. Although much of the past work in this State has been devoted to problems of stratigraphy and paleontology the great mass of fundamental information available makes the usual preliminary studies required in most geological investigations unnecessary. Present day investigations may, therefore, be more closely devoted to studies of reservoir rocks and other factors determining the accumulation of gas, for in most areas the foundation has been laid. For this reason it has been possible to survey the developed and potential gas resources of the State in a much shorter time than would be required in many other places.

Stratigraphy

It is obviously impossible to little more than summarize some of the fundamental features of New York State stratigraphy and confine this paper to a reasonable length. In many respects, however, the stratigraphic relation of certain formations is the most important factor in determining the occurrence or absence of commercial quantities of oil and gas, and for this reason the writer believes that geological work in New York must include not only structural studies but also careful investigations of conditions and centers of sedimentation. Such information can only be gained from stratigraphic studies. In the following paragraphs three general sections will be discussed covering the western, central and eastern parts of the State and comparisons will be made as frequently as possible in order to emphasize the changes in character that take place in the various beds.

All of the rocks under consideration are of Palaeozoic age and in going from the southern boundary of the State northward, successively lower and lower strata appear, so that beds which outcrop along Lake Ontario are many thousand feet below the surface at the Pennsylvania line. In this section there are two important unconformities. The unconformity between the Ordovician and Silurian representing not only a hiatus but also in the eastern part of the State a structural unconformity, and the unconformity between the Silurian and Devonian which in the western part of the State represents a hiatus and a stratigraphic unconformity; that is, there is a time interval unrepresented by strata in this region. In general it may be stated that the Silurian section thickens to the west and thins to the east and that the Devonian section thickens to the east and thins to the west. It should be appreciated that the following sections are generalized but the writer has endeavored to make them fairly representative:

EASTERN NEW YORK

Period, formation—	Thickness in feet
Devonian—Catskill formation	±4,000
Oneonta beds	550
Ithaca shales	500
Sherburne sandstone	250
Hamilton shales	1,500
Marcellus shale	130
Onondaga limestone	100
Schoharie grit	5-200
Esopus shale	90-700
Oriskany sandstone	0- 20
Becraft limestone	30
New Scotland limestone	125
Coeymans limestone	50
Silurian—Rondout and Manlius limestones	60
Cobleskill dolomite	6
Brayman shale	40
Ordovician—Lorraine and Utica shales	3,500

CENTRAL NEW YORK

Period, formation—	Thickness in feet
Devonian—Chemung formation	±2,000
Prattsburg sandstone	350
Highpoint sandstone	100
Grimes sandstone	50
Hatch shale and flags	300
Rhinestreet shale	20
Cashaqua shale	250
Middlesex shale	30
Standish flags and shale	15
West River shale	100
Genundewa limestone	1
Genesee shale	90
Tully limestone	15
Moscow shale	100
Tichenor limestone	1
Ludlowville shale	125
Skaneateles shale	125
Cardiff shale	100
Stafford limestone	1
Marcellus shale	50
Onondago limestone	120
Oriskany sandstone	0-6
Silurian—Cobleskill shale and dolomite	40
Bertie waterline	40
Camillus shale	300
Vernon shale	600
Pittsford shale	15
Lockport dolomite	130
Clinton formation	160
Albion formation (Medina)	100
Ordovician (?)—Queenston shale	800

WESTERN NEW YORK

Period, formation—	Thickness in feet
Devonian—Chemung	1,500
Portland shale and flags	280
Dunkirk black band	60
Silver Creek shale	260
Rhinestreet shale	230
Cashaqua shale	30
Middlesex shale	6
Genundewa limestone	1
Genesee shale	1
Moscow shale	50
Tichenor limestone	2
Ludlowville shale	100
Skaneateles shale	45
Cardiff shale	50
Stafford limestone	8
Marcellus shale	20
Onondago limestone	100
Silurian—Cobleskill dolomite	7
Bertie waterline	60
Camillus shale	185
Vernon and Pittsford shale	200
Lockport dolomite	200
Clinton formation	115
Albion formation (Medina)	125
Ordovician (?)—Queenston shale	±1,100
Oswego sandstone	±75

Deposits

In central New York the Oswego sandstone seems to merge with the Oneida conglomerate for in Oneida County this conglomerate rests directly upon the Lorraine shale. The Lorraine shale, as we find it today does not represent the entire areal extent of the sea in which it was deposited. Evidently during upper Ordovician time there was a progressive subsidence of the sea bottom and the Lorraine deposits therefore overlapped first the Trenton and then the lower Ordovician limestones and finally reached the pre-Cambrian land masses. Coarse sediments were deposited along the shore line with finer material accumulating farther out in the sea. Near the close of Lorraine time a gradual retreat of the sea seems to have taken place, accompanied by considerable folding and mountain building in the region east of the present valley of the Hudson River. This uplift caused a retreat of the shore line toward the west and the coarse shore deposits of the Lorraine were washed out to sea to form the Oswego sandstone of western New York. After the Oswego sandstone was deposited there was another subsidence of the sea floor with a consequent advance of the shore to the east. This advancing sea deposited along its shore line the Oneida conglomerate and at the same time the finer material was being deposited to the westward to form the Queenston shale. After the deposition of the Queenston there was another spreading out of the shore strata causing the deposition of the Albion beds which were laid down over the Queenston and overlapped on to the Oneida and then on to the Lorraine. In Herkimer County a conglomerate is found between the Lorraine and the Clinton with no Albion sandstone above it. This conglomerate seems to represent the shore line deposits of the Albion sea.

The Albion sedimentation was followed by the deposition of the muds and limes in western New York, and the coarser sands in eastern New York that make up the Clinton formation. These conditions did not continue very long for there was a rather sudden contraction of the sea toward the west which was followed by the deposition of the Lockport dolomite. The adjacent land masses to the east must have possessed little relief for the sea was free from silt and sandy material.

The close of Lockport sedimentation was probably caused by an elevation of the outlet of the Appalachian Gulf so that the salinity of the water increased to the point where very little life could exist in it and the salt and gypsum beds of the Salina were formed. At the same time the sea evidently advanced toward the east forming the Shawangunk conglomerate and the finer material accumulated and oxidized along the Lockport shore was washed out to form the red and green shales of the Salina.

At the close of Salina time the former outlet to the south and east was reopened and we find evidence of a constant transgression of the sea toward the northeast during which time the upper Silurian waterlines were deposited.

After the completion of the deposition of the Manlius limestone, there appears to have been a general elevation of the North American Continent, except for a long narrow sea which paralleled the Appalachian land mass. In this sea the Helderberg beds were deposited and during the period of their formation all of western New York was above sea level and the upper Silurian limestones were subjected to active erosion leaving only the Cobleskill present in the section.

Oriskany

Upon the completion of the deposition of the Helderberg beds there was apparently another elevation which brought certain areas covered by these formations above sea level. The first deposits of the Oriskany were therefore restricted to a small part of the old Helderberg sea for as the Oriskany sea transgressed to the west it deposited sands on successively older formations. Along the Hudson Valley the Oriskany rests on the Port Ewen limestone, the highest member of the Helderberg series; in the Schoharie Valley, it rests on the Becraft; in Herkimer County it rests on the Coeymans; in Cayuga County on the Manlius and in western New York the Oriskany horizon is immediately above the Cobleskill. By the time the shore line of the Oriskany had reached Erie County the deposition of the Esopus shales and the Schoharie grit were in progress in the eastern part of the State. These deposits have a relatively small areal extent and they were followed by the last great cycle of Palaeozoic limestone deposition during which time the Onondaga limestone was formed.

Toward the end of Onondaga time came the invasion of the black muds which formed the Marcellus beds. This was followed by a long period of deposition of calcareous silts and minor layers of sand which make up the Hamilton beds. These formations show that increased activity of erosion and distribution of the eastern land mass was in progress. At the beginning of Portage time tremendous quantities of mud and sand were being deposited throughout the northern part of the Appalachian Gulf. The beds of the Portage have been divided into three groups: The Oneonta, the Ithaca and the Naples.

The Oneonta beds, consisting of sandstones and shales, often of red and green color, represent the deposits of an isolated sea which was shut off from the main gulf. West of the Chenango Valley, these beds rapidly disappear, thinning out and penetrating the upper beds of the Ithaca series. The Ithaca beds represent a continuation of Hamilton deposition and they carry a modified Hamilton fauna. The Ithaca beds were separated from a marine invasion from the northwest, which brought with it the typical Naples fauna, by the Sherburne sand barrier. The Portage group, therefore, comprises three distinct phases of sedimentation that were going on contemporaneously.

Before the close of Portage time the deposition of red beds in the Oneonta area had already begun. There was undoubtedly a continuation of the elevation of the eastern land mass from which the continental deposits of the Catskill were formed. The Catskill beds are partially of the same age as the marine Chemung which was being formed in a restricted sea to the west and which was followed by the peculiar deposition of the interbedded marine and continental deposits of the Cattaraugus. The uplift that was responsible for the formation of these continental deposits probably culminated in the emergence of the State from the sea at the end of the Devonian. It is probable that certain beds of the Carboniferous were deposited in the southern

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part of the State but most of these have been removed during the long post-Palaeozoic period of erosion.

Stratigraphy

In a discussion of the general stratigraphy of those parts of the State that possess oil and gas possibilities it seems worthwhile to describe in somewhat greater detail certain beds and horizons that have proved most helpful as a basis for structural mapping. In the upper Devonian little reliance can be placed upon any so-called key beds, although in certain areas it is possible to follow some of the more persistent calcareous sandstones of the Chemung formation for short distances, and thereby establish a direction of dip. The higher members of the Portage group outcrop with such infrequency throughout a greater part of south central New York that it is almost impossible to follow individual horizons with any degree of accuracy. However, the beds of both the Chemung and Portage are sufficiently well stratified to enable the taking of reasonably accurate strikes and dips at large exposures, but great care must be exercised in accepting the indications of dip obtained from limited outcrops, since certain horizons in these formations are badly cross-bedded and may be most misleading.

The Rhinestreet shale and the Parrish limestone are the most easily identified and are probably the most reliable horizons in the Portage group. The type locality of the Rhinestreet is at Naples in Ontario County, and from this point it can be traced to Lake Erie on the west where it is more than 200 feet thick, and into the high divide country lying between Seneca and Cayuga Lakes to the east. It usually is of a very dark color and it is not nearly so fissil as the Genesee shale so that it is not readily mistaken for that formation. Resting directly above the gray flags and shales of the Cashaqua and below the blue and olive shales of the Hatch, it may generally be easily recognized and it has especially proved to be a valuable horizon in Wyoming and Livingstone Counties.

The Parrish limestone, located near the top of the Cashaqua shale has been extensively used as a key horizon in Ontario, Yates and Schuyler Counties. Its type locality is at Parrish Gully in Yates County, and although it cannot be definitely traced beyond these three counties it has been used within the limits of their boundaries as a basis for structural mapping. It is a hard, gray-brown, nodular limestone and rarely attains a thickness of over 2 feet. It is frequently found at the crest of waterfalls and is characterized by large nautilid fossils.

Below the Portage group there are three easily recognized formations: The Genundewa limestone, the Genesee shale and the Tully limestone. The Genundewa limestone was referred to in the earlier reports of the New York Geological Survey as the Styliola limestone owing to the fact that it is largely composed of the remains of the minute pteropod styliolina fissurella. It is normally rather thin-bedded and somewhat silicious and it attains its maximum development near its type locality at Genundewa Point on Canandaigua Lake where it consists of three bands of thin limestone in an interval of about 15 feet. It may be traced westward to Lake Erie where it is found in the gorge of Eighteen Mile Creek, northeast of the town of Silver Creek. Here it is only a few inches thick but it still maintains the lithology and characteristic fossils found at its type locality. It extends southeastward from Canandaigua Lake to Seneca Lake where it outcrops as a concretionary band above the black Genesee shale at Fir-tree Point, and at this locality it definitely marks the axis of the Fir-tree Point anticline. Beyond this point, it cannot be accurately followed as a definite stratigraphic unit, but its position can be ascertained from the fossils occurring in the beds immediately above the black Genesee shale.

Genesee Shale

The Genesee shale is one of the most persistent and also one of the most easily recognized formations in the New York Devonian section. It is very dark and fissil and in vertical cliffs it outcrops with a most distinctive, buttress-like effect. It contains very few fossils and in certain localities it carries beds of very irregularly shaped concretions. It may be followed from the headwaters of some of the north-flowing tributaries of the Mohawk River to Lake Erie. It has not been used as a key bed except in the east central portion of the State, for eslsewhere the thinner limestones above and below it generally outcrop with sufficient persistency to serve the purpose required.

The Tully limestone, laying directly below the Genesee shale and above the fossiliferous shales and limestones of the Hamilton group, has long been recognized as one of the most important stratigraphic units in the New York Devonian section. From its type locality at Tully, in Onondago County, it extends eastward through the southern part of Madison County into Smyrna Township as far as the town of Smyrna, beyond which point it cannot be readily identified owing to a very rapid change in its lithology from a true limestone to a series of calcareous shale beds, that very closely resemble and cannot be separated from the underlying beds of the Moscow. Tully fossils have been identified considerably farther east than Smyrna and the contact between the Genesee and the Moscow can usually be determined with sufficient accuracy to be used as a basis for structural mapping. Westward from Tully the limestone is prominently exposed through southern Onondaga County and across the central parts of Cayuga and Seneca Counties. Excellent outcrops can be found along Skaneateles, Cayuga and Seneca Lakes. Westward from Seneca Lake it may be followed into the central part of Ontario County but before reaching Canandaigua Lake it thins out and as a limestone disappears from the section. From this point its position has been identified almost to Lake Erie as a pyrite-bearing, fossiliferous band. The Tully probably attains its maximum thickness in Cayuga County where it is almost 30 feet thick. It gradually thins to the west being from 12 to 18 feet thick along Seneca Lake and at Keuka outlet. Where it is last definitely exposed a short distance east of Canandaigua Lake it is about 2½ feet thick. Eastward from the type locality its thickness cannot be accurately determined in many outcrops owing to its broken character. The Tully, where best developed, is a very hard, somewhat thick-bedded, bluish-gray limestone weathering to an ash-gray hue and containing in certain localities well defined bands of chert. It usually is quite fossiliferous and in the more westerly exposures it contains considerable pyrite. Owing to the soft character of the shales above and below it, the limestone almost consistently forms the crests of waterfalls and in many places it outcrops continuously, forming prominent cliffs along the lakes. Particularly good outcrops of this formation occur at Tinker Falls, in Cortland County, at the type locality in Tully Valley, at Taughannock and around Ludlowville on Cayuga Lake, at Lodi Glen on the east side of Seneca Lake and along Keuka outlet.

The Hamilton group, consisting of the Moscow, Ludlowville and Skaneateles shales contains one excellent key bed: The Tichenor limestone, which separates the Moscow from the Ludlowville. The type locality of this bed is at Tichenor Point, along Canandaigua Lake and extending westward it outcrops prominently in many ravines to Lake Erie. Eastward from the type locality it can be recognized as far as the central part of Madison County. The Tichenor rarely attains a thickness of over 2 feet. It is very hard, highly fossiliferous and frequently contains nodules of pyrite. Like the Tully, it is most frequently found forming the crests of waterfalls, but owing to its ability to resist weathering it is sometimes found outcropping along hillsides and in open fields. Some very good outcrops available for study occur on Eighteen Mile Creek and north of East Aurora in Erie County, at the type locality along Canandaigua Lake, and at Esinore Glen and east of King's Ferry on Cayuga Lake.

Hamilton Beds

East of Cayuga County the Hamilton beds, in general, become more calcareous and numerous thin limestones appear in the section. The majority of these are not sufficiently continuous to be of great value, and because of their number and short extent, complicate the section. In Onondaga and Madison Counties a thin limestone occurring near the base of the Skaneateles shale, and locally known as the Skaneateles limestone, has been used to a limited extent. Good outcrops of this bed may be found on the Onondaga Indian Reservation, southeast of Syracuse, south of Manlius in Onondaga County, and along some of the tributaries of Chittenango Creek in Madison County.

Underlying the Hamilton group is the Marcellus group consisting of the Cardiff shale and the true Marcellus shale, usually separated by the Stafford limestone. The Stafford is best developed in Genesee and Erie Counties although it is occasionally found farther east. In central New York it is apparently not well developed and it cannot be recognized in eastern New York. Where best developed in Erie County it consists of a thin-bedded, somewhat shaly limestone from 6 to 8 feet in thickness. The best outcrops of this formation occur in the vicinity of Stafford in Genesee County, and in that area it has been used to determine the degree and direction of dip.

In Onondaga and Madison Counties there occurs near the base of the Marcellus shale a most interesting limestone known as the Agoniatite. This name is due to the abundant fossil remains of the large cephlapods Agoniatites and Gomphoceras found in it. The Agoniatite limestone rarely exceeds 2 feet in thickness and it can be readily identified owing to its fossil content and to its position in the black, bituminous Marcellus shale. This horizon has been very useful in the area where it definitely exists since contacts between the Marcellus and the underlying Onondaga limestone are, surprisingly enough, rather rare.

The Onondaga limestone, underlying the Marcellus shale is the most persistent, both in areal extent and in lithology, of all of the Devonian rocks in the State of New York. It was originally divided into three separate formations: The Seneca, Corniferous and Onondaga limestones, but this classification was later abandoned owing to the similarity of the fossil faunas existing throughout the entire group. The Onondaga is generally over 100 feet thick, but due to the rather level character of the surface and to the thick deposits of glacial material at the point of its outcrop, complete sections of the formation are rarely exposed. The Onondaga extends continuously from the highlands along the Hudson River in Albany County across the State into Erie County. Its stratigraphic relation to the underlying beds has been previously described. Owing to the limited character of its outcrops and to its considerable thickness, it can rarely be used as a basis for detailed structural work although it is easily recognized and can hardly be mistaken for any other formation. Its outcrop, however, defines the broader structural features of a large area and for this reason it has been mapped in considerable detail.

Key beds below the Onondaga limestone are not so essential since the majority of the developed and potential gas fields of the State lie south of its outcrop. The formations below the Onondaga will be more fully described under a discussion of reservoir rocks and the following notes on certain of these beds are merely supplementary to a subsequent more comprehensive description.

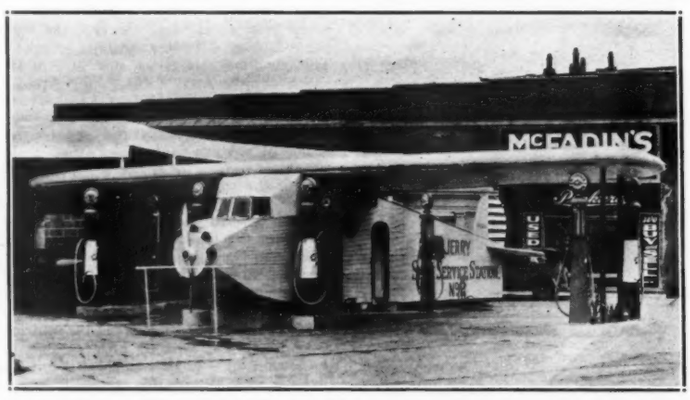
Paleontological Study

In eastern New York the thick series of limestones and dolomites comprising the Helderberg group and the upper Silurian waterlines really require careful paleontological study to be accurately differentiated. Certain chert beds in the Coeymans limestone have been successfully used to establish the direction and rate of dip in parts of Herkimer, Oneida and Madison Counties. The Manlius limestone can generally be identified owing to the abundance of tentaculite fossils in it. In fact, it was originally called the Tentaculite limestone, but unfortunately this fossil is not restricted entirely to the Manlius and in places they may not be common in it. However, a massive limestone composed largely of tentaculite remains is almost certain to be the Manlius.

In western New York the rather prominent escarpment formed by the outcrop of the Lockport dolomite is useful in regional structural studies. The Irondequoit and Wolcott limestones of the Clinton formation may be locally used as key beds although it has been previously emphasized that the stratigraphy of the Clinton is very complex and individual beds of this formation cannot always be relied upon.

Practically all of the beds that have been described as key horizons can be safely used for structural mapping in local areas, but owing to the different directions of convergence of both the Devonian and Silurian formations, structure maps based upon one formation that

FILLING STATION PATTERNED AFTER PASSENGER PLANE



Increased business is reported by James Smith, filling station operator of Shreveport, La., to have followed construction of a station patterned after a big passenger airplane.

The wing spread is 60 feet 6 inches, length 41 feet, height 11 feet 6 inches. Housed in the "fuselage" is a roomy office for the station operator where the pilot's seat, control board, engine space, etc., would be in a real plane. In the "passenger compartment" are rest rooms, air compressor and storage rooms. Drawings and specifications for the station have been copyrighted by Mr. Smith, who says the entire cost of building the station amounted to $1,825. Outside the fire limits, however, where use of fireproof materials throughout is not required, it could be built more cheaply. The station occupies the site of a former one of more conventional design on one of the downtown corners of the city.

Mr. Smith says he conceived the idea of building a station in this fashion while watching the refueling of a bombing plane on its way to the recent maneuvers in San Diego, Calif.

cover a wide area cannot be accurate unless combined with a convergence sheet.

Oil and Gas Reservoir Rocks and Possible Oil and Gas Producing Horizons

In considering New York as a whole it is apparent that the geologic section in so far as source beds are concerned is very favorable for the occurrence of oil and gas but that in many areas the lack of suitable reservoir rocks has prevented the accumulation of appreciable quantities of oil or gas even under favorable structural conditions. The importance of a careful study of the character and extent of the proven reservoir rocks and the potential reservoir rocks is therefore evident, in as much as their presence or absence will be the determining factor in establishing the ultimate value for very large untested areas.

Oil and gas have been produced from sandstones in the Chemung formation for many years in Cattaraugus and Allegany Counties and farther south in western Pennsylvania. These sandstones are almost uniformly fine grained and thin-bedded and appear to have been deposited under conditions of an encroaching sea in bays and estuaries connected at times and again perhaps separated from the main body of the sea. Although many of these sands cover a considerable area they may all be essentially regarded as large lenses. Owing to the vast amount of drilling that has already been done these lenses have been thoroughly defined and it is rather unlikely that new fields of any consequence will be discovered in the Chemung in the future. The occurrence of oil and gas in Chemung sands conforms rather closely to structure and where the sands are continuous enough to cover a large area, such as in the Bradford and Allegany Fields, anticlinal control of oil and gas accumulation is very evident.

The changing character of the Portage beds has been previously described. In the typical Naples section there are one or two rather promising looking sandstones, but these apparently do not extend for any great distance south of the outcrop for numerous wells drilled in Allegany, Steuben and the southern part of Livingstone Counties have failed to discover oil and gas reservoirs of any consequence. This may in part be due to the lack of favorable structures but in general the sandstones of the Naples section appear to be extremely impervious and in most cases they may be correctly termed flagstones.

The Sherburne sandstone of the Ithaca section possesses slightly better possibilities than the upper Naples sandstones owing to its proximity to the bituminous Genesee shale. In most places it appears to be firmly cemented and although under favorable conditions, some gas may be found in it, the Sherburne cannot be regarded as a very promising potential horizon.

The Oneonta beds are essentially made up of sandstones and sandy shales, some of which might serve as reservoir rocks. Since most of the Oneonta beds are probably of continental origin and are lacking in organic remains it is doubtful whether commercial gas pools will be discovered in them.

It, therefore, may be reasonably concluded that the prospects for obtaining oil or gas from Portage formations in the State of New York are rather poor. This conclusion has been rather amply confirmed by the large number of dry holes that have been drilled in these beds.

The formations of the Genesee, Hamilton and Marcellus groups may more logically be classed as source beds than as reservoir rocks owing to their bituminous character and to the large amounts of organic remains found in them. The writer has found concretions from the Genesee beds that contained liquid hydrocarbons and small gas seepages are not uncommon from them. If these formations contained continuous porous sand bodies almost every anticline in the State would be a potential oil and gas field but since this is not the case, any future production from these formations over a large part of the State will be similar to the small shale gas fields developed in Yates, Ontario and Livingstone Counties and along Lake Erie.

In a rather restricted area the Hamilton beds contain quite a series of rather attractive appearing sandstones, indicating an approach to a shore-line stage of deposition. On the outcrop these sandstones seem to be reasonably continuous and porous and if such conditions persist south from the outcrop commercial gas fields may be expected from the Hamilton, under favorable structural conditions. In so far as the writer knows the Hamilton sandstones have not been tested in an area where there is any chance of production from them and in his opinion they offer rather promising possibilities.

The Tully limestone can hardly be classified as a reservoir rock although the Gilbert well of the Belmont Quadrangle Drilling Corp. discovered gas in this formation. Subsequent drilling operations in the vicinity of this well have indicated that the gas probably originates from a lower horizon and worked its way up through a fractured zone into the limestone.

Onondaga Limestone

The Onondaga limestone has been a prolific source of oil and gas in Kentucky and Ontario. Although it has been penetrated by thousands of wells throughout New York, no commercial deposits of oil or gas have been discovered in it. A few wells in the vicinity of Gowanda in southern Erie County and in southwestern Genesee County have produced small amounts of a very light oil and a little gas from the Onondaga, but the volumes yielded have never been sufficient to warrant further development. It should, however, be pointed out that oil production in the Onondaga has chiefly been derived from faulted anticlines such as the Irving and Campton Fields of Kentucky, and that in these fields the limestone has probably been made porous by the solvent action of circulating water along fault planes prior to the migration and accumulation of oil and gas. Under similar conditions the Onondaga limestone might be expected to be a very productive horizon in the State of New York for it is unquestionably petroliferous at many localities.

The Oriskany sandstone, which is the producing horizon of the Tyrone Field in Schuyler County and also of the recently discovered Farmington well in Tioga County, Pennsylvania, may eventually prove to be one of the most important sources of gas in the State. Its occurrence at the outcrop is very erratic but where it does exist it possesses all of the characteristics that might be desired in a reservoir rock. At the type locality, at Oriskany Falls, N. Y., the Oriskany sandstone is from 10 to 12 feet thick. It is a rather coarse grained, uniformly bedded, friable, fossiliferous sandstone. The cementing material seems to be essentially calcite which is probably responsible for its softness at the outcrop. The sand grains are chiefly quartz and are fairly well rounded and some of them are frosted indicating that the material making up the formation was transported for a considerable distance. The Oriskany horizon can be traced along the outcrop almost entirely across the State but as a definite sandstone it is rarely found west of Seneca County. Eastward from the type locality it becomes more calcareous and in Albany County it is more nearly a sandy limestone. There are very few really good outcrops of Oriskany available for study. Outside of the type locality, the best locality with which the writer is familiar is at Yawger's Wood in Cayuga County, where a thickness of 26 feet of sandstone is exposed.

The limestones and dolomites directly underlying the Onondaga and Oriskany, consisting of the Helderberg group and the Manlius, Rondout, Cobleskill and Bertie, possess little possibilities as oil and gas reservoir rocks. The Cobleskill is now believed to be the producing horizon of the Zoar Field in Erie County, but elsewhere it has never proved to be productive. The Cobleskill, in certain localities, is largely composed of coral reefs which, on the outcrop, are rather porous, and the Zoar gas probably came from such a reef. Other reefs in the formation may produce, particularly in the eastern part of the State, but the discovery of gas from the Cobleskill, if any is present at all, will largely be a matter of accident.

The Lockport dolomite, frequently referred to as the Niagara limestone, is a rather important producer of gas in eastern Ohio and in Ontario. In western New York it must be porous, for it almost invariably carries much salt water which sometimes is under sufficient pressure that it flows to the surface. The lower part of the Lockport, particularly where exposed at the falls of the Genesee River at Rochester is highly bituminous and under favorable structural conditions oil or gas might be expected from it. The absence of folds of any consequence in western New York is probably the reason why the Lockport has not been the source of commercial gas fields. Eastward from Rochester the Lockport gradually thins out and it disappears entirely from the section in Herkimer County.

The complexity of the stratigraphy of the Clinton formation has been previously referred to. In western New York the formation is composed chiefly of shales and limestones but the limestones extend eastward only to about the west line of Cayuga County. Beyond this point the formation becomes more sandy and in the Mohawk Valley it is largely composed of sandstones and sandy shales. In so far as the writer knows there has never been any gas produced from the Clinton in New York but considering the character of the formation in the parts of the State where most of the drilling has been done, this is not surprising. Some of the Clinton sandstones in eastern New York seem to possess all the requisites of good reservoir rocks and if they extend with sufficient regularity south from the outcrop, under areas where favorable structures exist, they may prove to be prolific sources of natural gas.

Lower Silurian Sandstones

The sandstones of the lower Silurian have been the source of much of the gas produced in New York. In western New York these sandstones are excellently exposed in the gorge of the Niagara River and consist of three distinct units: The Thorold sandstone or "Gray band" of the ealier reports, consisting of about 5 feet

PROGRESS ON KENTUCKY-INDIANA UNITS OF MISSOURI-KANSAS CO.

OWENSBORO, Ky., Oct. 27.—H. C. Nunn, pipe line superintendent of the Kentucky division of the Missouri-Kansas Pipe Line Co.'s pipe line, makes a progress report on the Kentucky-Indiana units of the company as follows:

1. Terre Haute to Ohio River 12-inch line (133 miles), survey completed, rights of way being taken, pipe unloaded.

2. Ohio River crossing near Evansville; three 8-inch lines laid in river channel; completed, including 4½ miles of 10-inch line northeast from Indiana header, where it will tie into 12-inch main line.

3. Ohio River to Madisonville, 10-inch (41 miles), line completed, to be tested soon.

4. Madisonville to Russellville, 10-inch (65 miles), 25 miles completed, exclusive of 7 miles in Kirkwood Springs-to-Madisonville unit.

5. Kirkwood Springs gas field to Madisonville, 6 and 10-inch line (18 miles). 11 miles of 6-inch, 7 miles of 10-inch completed, rechained and tested.

6. Hopkinsville extension, 6-inch line (11 miles). This line will extend from Hopkinsville to the nearest intersection point on the Madisonville-to-Russellville 10-inch line; pipe arrived; construction starts in few days.

7. Greenville extension, 4-inch (4½ miles). This line will extend from Greenville to the nearest intersection point on Madisonville-to-Russellville 10-inch line; pipe arrived; work starts soon.

8. Russellville to Bowling Green, 8-inch (29 miles); completed, tested and gas in line; now supplying Bowling Green, Auburn and Franklin, Ky.

9. Franklin extension, 4-inch (12 miles). This line extends from nearest intersection point on Russellville-Bowling Green line; completed and in service.

10. Auburn extension, 4-inch (one-half mile); located immediately south of Russellville-Bowling Green line; completed and in service.

11. To Bowling Green from Center gas field, 8-inch (45 miles); Bowling Green 8-inch and 6-inch spur. Completed and in service, transporting gas from Center toward Russellville, includes three 6-inch lines across Barrek River.

12. Munfordville extension (9 miles); extending from a point near Bear Wallow on Center-Bowling Green line northward to Munfordville; surveyed.

13. Henderson-Owensboro system, 8-inch (28 miles); completed, tested and in service.

14. Utica extension, 4-inch (5½ miles); completed, tested and in service, including 2-inch field lines from nearby gas wells.

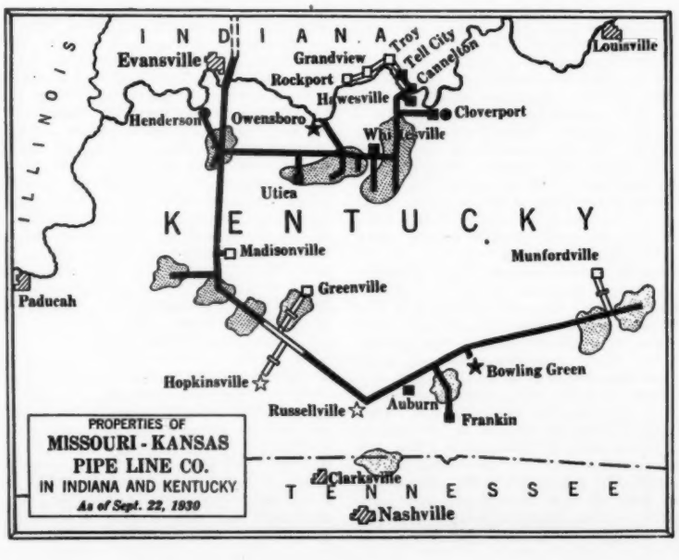
15. Whitesville extension, 4-inch (2 miles); completed and in service.

16. Sunnydale to Deanfield, 8-inch (8 miles); completed and in service.

17. Deanfield, Ky., to Tell City, Ind., 6-inch (23 miles); completed and in service; includes three 6-inch lines across Ohio River; Cannelton and Tell City (Indiana) now being served by this line; distribution plant at Hawesville will be completed in few days.

18. Cloverport extension, 4-inch line (9 miles); in service, now serving Cloverport and Murray tile plant there.

19. Tell City to Troy, 4-inch line (3 miles); surveyed, construction started.



of gray, massive, somewhat cross-bedded sandstone; the red Medina sandstone, made up of 53 feet of alternating gray and red sandstones and shales; and at the bottom, the white Medina or Whirlpool sandstone which consists of 22 feet of white, cross-bedded sandstone. Most of the gas produced in western New York comes from the White Medina. Small gas flows are sometimes found in the red Medina but outside of the Pavilion Field, in Genesee County, which was a red Medina Field, no other field has yielded appreciable quantities of gas from these beds.

The gorge of the Genesee River at Rochester exposes an excellent section of the Medina group. The Thorold sandstone is here about 5 feet thick. The red sandstone is about 60 feet thick but the Whirlpool sandstone has disappeared from the section. The Whirlpool sandstone extends through Niagara and Orleans Counties but it is not found in Monroe or Wayne Counties.

The red Medina sandstone, as a unit, extends into Cayuga and Oswego Counties, gradually thinning toward the east. The Thorold sandstone, however, thickens east of the Genesee River forming the Oneida conglomerate.

Since gas production from the lower Silurian sandstones is essentially restricted to the Whirlpool sandstone, there seems to be little chance for the discovery of large gas fields producing from these beds in central New York, and it is likely that Medina gas production will be largely confined to the present developed region. Gas may be obtained in certain areas from the Oneida conglomerate although in most localities the pebbles and sand grains seem to be very tightly cemented and in general it does not have a very promising appearance.

Natural gas has been produced from the Trenton limestone, of Ordovician age, for many years in Oswego and Oneida Counties. The Trenton, in this area is fully 600 feet thick and although largely made up of rather thick-bedded limestone it is somewhat interbedded with very calcareous shales. The gas produced from the Trenton seems to have accumulated along these shale breaks. The amount of gas produced from the wells is small but as soon as one horizon becomes depleted the well is usually deepened to a lower level. Elsewhere in the State very few wells have been drilled to the Trenton. It is probably the deepest formation that will ever produce commercial quantities of gas in New York, and although relatively untested at the present time, it may be regarded as the final goal of exploratory wells.

In the vicinity of Watertown, in Jefferson County, small amounts of gas have been produced from the Potsdam sandstone of upper Cambrian age. Owing to extreme drilling depths over a greater part of the State and also to the quartzitic character of the formation it is very unlikely that it will ever be an important source of natural gas.

Stratigraphy—Source Beds

The geological section of New York contains numerous beds that contain sufficient organic material to be classified as source beds. Some of these such as the Genesee and Marcellus shales are true oil shales although they do not yield as great a recovery of oil by distillation as some of the western shales. The Marcellus has been mistaken for coal at many places and several attempts have been made to mine it for fuel purposes.

The oil and gas contained in the sandstones of the Chemung probably originated in these beds. The bays in which they were deposited afforded an excellent accumulating area for the remains of both plants and animals. Some of the Chemung sandstones contain an abundance of rather well preserved plant remains associated with marine fossils. Although plant life did not reach the ascendency in the upper Devonian that it did in the following Carboniferous period, there must have been a rather luxuriant growth of vegetation along the shore line to have supplied the large number of plant fossils found in these beds, even down into the higher Naples formations. It has been the writer's opinion for sometime that the oil and gas produced from Chemung beds was in part if not entirely derived from vegetable sources. The absence of fractures or faults of any consequence in the area covered by the oil and gas fields producing from Chemung beds rather precludes the possibility of oil migration from lower source beds.

The Portage group contains several black, bituminous shales; the most notable being the Rhinestreet, Middlesex and the West River. Carbonaceous shales, however, are not restricted to these formations for they are also found in the Cashaqua, Hatch and West Hill. The Genesee is a very bituminous and the underlying Hamilton beds contain an abundance of organic remains. Both the Cardiff and the Marcellus shales are uniformly bituminous and all of these beds have produced some shale gas in various areas. The Onondaga limestone contains asphaltic residue at several localities and in Erie County the writer has found liquid hydrocarbons in Onondaga corals. The entire Devonian section of New York is therefore very amply supplied with possible source beds but as has been previously pointed out, the absence of suitable reservoir rocks is undoubtedly the reason for the comparatively restricted area of oil and gas producing territory from Devonian beds.

In the Silurian, the Lockport dolomite is the only formation on the outcrop that shows evidence of containing hydrocarbons. Freshly broken pieces of the Lockport, particularly from the lower part of the formation, have a decidedly petroliferous odor, and small fragments of hard asphaltic material are rather common.

The gas produced from the Medina probably did not originate in it, but likely migrated from source beds in the Ordovician up fracture zones which very likely are responsible for the occurrence of the Medina fields. There is a great dearth of organic remains in the Medina beds and in the underlying Queenston shale, but the Trenton limestone and the dark, carbonaceous shales of the Hudson River contain ample organic material to serve as source beds.

Structure

The geologic structure of the rocks of New York has never been studied with the care and the detail that has been devoted to their stratigraphy. In general the strata from Lake Erie on the west to the Hudson Valley on the east dip to the southwest. This dip is in part due to depositional conditions but in a larger sense it may be attributed to the succession of elevations and depressions of the shore line which controlled the formation and distribution of the Palaeozoic sediments. Four important periods of structural deformation are evident. At the close of the Ordovician, at the close of the Devonian, during the Mississippian, and at the end of the Palaeozoic. In addition parts of eastern New York have undoubtedly been affected by the disturbances occurring during the Triassic and the whole State must have been affected by the elevating movements that took place during Cretaceous and Tertiary times which are much better defined by the dissected peneplains of Pennsylvania.

At the close of the Ordovician the strata of eastern New York and western New England were subjected to a rather violent period of mountain building which has been designated as the Green Mountain disturbance. The effects of this disturbance are very evident in the Hudson Valley where the Silurian beds rest unconformably on folded and possibly faulted beds of the Hudson River group. The general direction of strike of this disturbance seems to be more nearly north and south than the subsequent period of elevation and mountain building which occurred at the end of the Palaeozoic. The effects of the Green Mountain disturbance in the Ordovician beds are not evident in south central New York owing to the heavy covering overlying these formations, but it is probable that minor systems of folds were established in the lower formations. Prior to the Green Mountain disturbance, and in fact during a greater part of Ordovician time, the subsidences within the geosynclines had warped the bottoms of the continental seas and affected their depth, area and outline. This warping was responsible for the uplifting of the Nashville-Cincinnati Islands which originated in Tennessee during Middle Ordovician time and gradually moved northward through Ohio and across Lake Erie into Ontario. This movement, probably had only a minor effect on the Ordovician beds in western New York, but it was undoubtedly, in part, responsible for the movement in centers of sedimentation which marked the beginning of Silurian time and it served to accentuate the compressive effects on the strata in the central part of the State.

During early Devonian time the eastern boundary of the Appalachian Gulf was gradually elevated with a tilting effect which pushed the Oriskany sea across the State. The effects of this movement were not very pronounced and the continental land masses remained at a relatively low level during most of lower Devonian time. During middle Devonian time and continuing through upper Devonian time the rocks of New England and the Maritime Provinces of Canada were again elevated and folded which resulted in a reoccurrence of active erosion from which the arenaceous deposits of the Portage, Chemung and Catskill beds were derived. This deformation was accompanied by considerable volcanic activity, which, however, is not evident in New York. This movement has been called the Shickshockian disturbance and it undoubtedly tended to further establish the lines of north-south folding formed during the Ordovician.

During Mississippian time there is evidence of a general tilting movement to the south and southwest which prevented the northern invasion of the Carboniferous seas and which was probably due to the overloading of the geosyncline to the south.

At the close of the Palaeozoic much of eastern North America was folded, faulted, and thrust to the west and northwest and these earth movements superimposed a series of folds on the tilted and folded strata of central and eastern New York.

In western New York the strata dip consistently to the south and southwest but the rate of dip is not constant and rather pronounced terraces occur. At the crest of these terraces the strata are almost invariably fractured and jointed and in some instances noticeably disutrbed. Owing to the thick glacial deposits covering much of this area, these minor deformations are not always exposed, but good examples may be seen along Lake Erie a few miles north of the Pennsylvania line and along Cattaraugus Creek 1½ miles above Little's Mill.

Going east from Lake Erie the first evidence of the previously described north-south system of folding is found in Wyoming County and in the Genesee Valley. The folding in this area is extremely gentle, but it has been definitely established by subsurface structure maps. None of the folds are closed and in reality they can better be classified as plunging noses. Farther east this system of folding becomes more pronounced. Both Keuka and Seneca Lakes lie in definitely established synclines striking in an almost due north-south direction and separated by a well developed anticlinal axis. The same condition probably exists in the Cayuga Lake Valley, although here the structure is complicated by better developed folds of the Appalachian system. East of Cayuga Lake, there is evidence of a continuation of these north-south axes, although in many areas it is impossible to accurately establish their position owing to the absence of key horizons from the section and to the thick covering of glacial drift. In the eastern part of the State they are again very evident and in this area the folding is much more intense and faults of considerable magnitude exist.

Appalachian Folds

Beginning in the southeastern part of Cattaraugus County and extending in an east and northeast direction the Appalachian system of folds are found superimposed on the southwest dipping and gently deformed strata. These folds, through Allegany, Steuben, Ontario, Yates and Schuyler Counties strike in a general northeasterly direction. Beyond the longitude of Seneca Lake the direction of strike changes to a more nearly due east direction. At the point where the direction of strike definitely changes the strata are usually rather badly distorted. An excellent example of this may be seen along the axis of the Sabinsville anticline southwest of Elmira. Where the folds of the Appalachian system intersect the older north-south folds domes of considerable magnitude are formed such as the Branchport, Gorham, Tyrone and Ludlowville structures. Most of the Appalachian system of folds extend for a considerable distance, such as the Alpine anticline, and along these folds closures occur not only at the intersection with the older system of folding but also in so far as the writer knows at every place where there is a local change in the direction of strike. These closures are separated by saddles or re-entrant synclines which on the north and northwest flanks of the folds strike in a general westerly direction and on the south and southeast flanks they strike in a general southerly direction.

The folds of the Appalachian system are characterized by a gentle north and northwest dip and a much more pronounced south and southeast dip. Usually about 1 mile south of the axis of the folds an area of very pronounced dip is encountered which ordinarily does not extend for more than 2,000 feet. This structural feature indicates that these folds are the surface expression of powerful underthrusting effects in the lower beds, for if the folds were the result of overthrusting we would expect to find the steepest dip on the north or northwest flank of the anticlines; that is, on the side of the anticline away from the origin of the earth movement. It is impossible to state at the present time how high into the sedimentary rocks these faults extend but it is logical to believe that they are more or less restricted to the lowest Palaezoic strata. In the great anticlinal valleys south of the Susquehanna River, the Ordovician beds are folded and dip in conformity and similarly to the much younger beds outcropping along the more gently folded anticlines to the north. It is the writer's opinion that the limestones of the Ordovician were sufficiently competent to carry the weight of the overlying sediments and that the pre-Cambrian rocks were pushed under less competent Cambrian shales to form the existing folds. It is, at least, very evident that with possibly one exception, none of these folds were formed by overthrusts such as are known in Virginia and eastern Tennessee. The exception referred to is an offset fold south of the State line, in Pennsylvania, where some evidence of deep-seated overthrusting has been found.

Little evidence of faulting is found in central New York. The most pronounced fault that is known to the writer exists along Keuka outlet and appears to be a normal fault with approximately 60 feet displacement. Elsewhere the stratum is sometimes broken by very minor faults and particularly in the synclines it may be highly disturbed owing to a lack of relief for the compressive forces that is possible along the anticlinal axes. Such disturbances are, however, of only local extent but sometimes they are most confusing and in limited exposures they may be very misleading.

There is in many instances a very close relationship between topography and structure, notwithstanding the effects of glacial action. The position of certain of the Finger Lakes in synclines has been previously referred to and in many instances anticlinal axes and closures are wells defined by hills and divides so that the center of drainage patterns may very closely approximate the highest parts of the structure. No well defined anticlinal valleys and synclinal mountains, such as exist throughout northern Pennsylvania, are known.

Metamorphism of Strata

Owing to the absence of coal beds, it is impossible to designate very definitely certain areas where metamorphism has been sufficiently intense to preclude the possibility of the occurrence of oil or gas. The presence of oil and gas in western New York and of gas in central New York is a sufficiently good indication that if it were possible to construct an

(Continued on Page 107)

Twenty-Eight Completions in the East

Bright Spot Is Continued Drilling in Gas Areas and Opening of Additional Gas Reserves for New Lines

By Staff Correspondent

PITTSBURGH, Pa., Oct. 27.—Oil operations in the eastern fields are at a low ebb with fewer completions in West Virginia and southwest Pennsylvania. Refinery operations in the Pittsburgh district continue very much reduced, reflecting industrial conditions. The bright spot is the continued drilling in gas areas and the opening of additional gas reserves for the expected increase due to shipments of natural gas for eastern cities and towns along the route.

The summary of completions in the eastern fields shows 28 new wells. In the southeast Ohio field there were 16 completions, 10 oil producers, 2 dry holes and 4 gas wells, one of which was good for 1,000,000 feet a day. In West Virginia there were three small oil wells, six gas wells, one in Calhoun County rated at over 1,000,000 feet a day, a total of nine completions, which is the poorest week in that district for many months. Southwest Pennsylvania reported two wells completed. In the latter two districts the lack of water is still retarding operations.

SOUTHEAST OHIO

The best completion in southeast Ohio was the second well on the B. P. Stokely farm, SW of Section 34, Newton Township, Muskingum County, which was completed by the Ohio Fuel Gas Co. in the Clinton sand at 3,500 feet. After shot it produced 60 bbls. the first day. In Perry County, Shenker & Bowman drilled a test on the Kulp heirs farm, in the NE of Section 16, Reading Township. It is a 1,000,000-foot gasser in the Clinton sand at 2,990 feet.

In Athens County C. H. Beasley and others completed their No. 14 on the W. D. Whaley farm in the grit at 1,198 feet and after shot it made 2 bbls. the first day. This farm is in Section 24, Alexander Township. In Guernsey County, Ernest Walters and others completed a test on the William Messer heirs farm in the SW of Section 20, Westland Township. It was drilled in the Niagara lime at 3,456 feet and produced 10 bbls. the first day after shot. In Holmes County the Ohio Fuel Gas Co. has a small gasser estimated at 120,000 feet in a test on the A. H. Campbell farm, Section 12, Washington Township. It went to the Clinton sand and a depth of 3,112 feet.

Licking County had two completions. Near Fallsburg, Section 13, Fallsbury Township, the Murphy Petroleum Co. and others completed a test on the Alfred Johnson farm in the Clinton sand at 3,000 feet from which 12 bbls. were swabbed the first eight hours. When the well was shot the two bottom joints of casing collapsed and water broke in, spoiling the effect of the shot. The well had top and bottom pays of sand and was showing for a good well. The casing is being pulled. In the same section the Emerald Petroleum Co. and others completed No. 2 on the Wilber Babcock farm in the Clinton sand at 2,975 feet and it has a small showing, with but 200 feet of oil in the hole after 24 hours of the shot.

Medina County

In the shallow drilling in Medina County, the Oko Oil & Gas Co. completed No. 44 on the Henry Essig farm at 385 feet. It is located on Lot 2, Chatham Township, Section 13, and it made 25 bbls. the first day after shot. In Monroe County, Shay McMullin Co. drilled No. 2 on the A. H. Cornin farm, Section 5, Washington Township, in the Berea grit at 1,841 feet. After shot, it produced 3 bbls. the first day.

Two additional completions in Muskingum County proved small gassers. In the northeast 40 acres in the SE, Section 23, Brush Creek Township, the Ohio Fuel Supply Co. completed a test on the L. D. Pake farm in the Clinton sand at 4,015 feet and it is estimated good for 40,000 feet a day. In the SE, Section 14, same township, the same company drilled a test on the A. S. Leetand farm at a depth of 3,806 feet and in the Clinton sand. It will make about 30,000 feet a day.

In Noble County, B. C. Robinson and others completed No. 3 on the Catharina Young farm, SE, Section 28, Elk Township. It reached the Germantown sand at 1,020 feet and after shot is showing for a 3-bbl. pumper. Perry Sturm and others completed a test on the Somerset Fair grounds in the NE, Section 15, Reading Township, Perry County, and it was dry in the Clinton sand at a depth of 2,995 feet.

In Washington County, there were three completions, all in the shallow sands. The First National Bank of Marietta No. 18 completed No. 39 on the John A. Herlan and Louis A. Mendenhall farm in the Mitchell sand at 447 feet which made 1 bbl. natural the first day and 3 bbls. the first 24 hours after shot. It is located on Tice Run, Section 32, Independence Township. In Lot 41, Salem Township, the Thomas Oil Co. completed No. 2 on the William Dewees farm in the Buel Run sand at 274 feet and it made 3 bbls. natural the first day. On Newells Run, Section 6, Newport Township, Wilford Brothers drilled a test on the Wesley Hasly farm in the Mitchell sand at 420 feet. It made 1 bbl. natural the first day which was doubled after shot.

Drilling in Ohio

There are a number of tests drilling in Muskingum County, Southeast Ohio. The Atha Oil Co. has reached 2,200 feet on the Imhoff and Bitt property in Washington Township. In the same township and on the John Mahoney farm, the Ohio Fuel Gas Co. is down to 2,400 feet, and on the Isaac Wolf farm has reached 3,950 feet and is approaching the sand. In Perry Township, the Wittmer Oil & Gas Properties is drilling at 3,800 feet on the Frank Border farm, Section 15, and in Section 22, the Atha Oil Co. is at 2,800 feet on the L. M. Bryan farm. In Section 3, same township, the Ohio Fuel Gas Co. is about in the sand on the Eli Derry farm, and in Section 16, Perry Township, the Preston Oil Co. has a rig standing on the John C. Hicks farm. In Wayne Township, the Atha Oil Co. has reached 3,800 feet on the George Heinle farm. In Brush Creek Township, the Gas Producing Co. of Ohio and others are drilling at 2,800 feet on the Emmett Swingle farm, Section 17. In Section 16, W. R. Crawley and others have spudded in and started drilling on the G. L. Watson farm. In Harrison Township, Section 17, H. E. Donahue has reached 1,150 feet in his second well on the J. W. Rush farm. In Jackson Township, the Pure Oil Co. has reached 2,650 feet on the A. W. Holman heirs' farm, Section 6, and has a rig standing on the F. H. McKee farm, and the timbers hauled in for a rig on the Lloyd McKee farm, Section 6. In Clay Township, William Cline and others have finished their rig on the Howard H. Doyle farm, Section 3. In Hopewell Township, the Hopewell Fuel & Gas Co. has reached 2,200 feet in its fourth well on the A. O. Michael farm, Section 5.

In Monroe Township, Petty & Lauchery have started drilling on the Clove Cowden farm, and in Section 13, James E. McLaughlin is down to 890 feet in his No. 6 on the Richard Boyce farm. In Tuscarawas Township, Bell Brothers & Co. have reached 800 feet in a second test on the Stockum Brothers property.

In Perry County the Gas Producing Co. of Ohio has reached 2,500 feet on the M. T. and F. C. Moore farm, Harrison Township, Section 18, and in the same section David L. Melick, trustee, is at 1,300 feet on the H. E. Stoneburner farm. In Clayton Township the Gas Producing of Ohio plugged a dry hole on the David Hammer farm, Section 11, and the Wehrle Co. in Section 21, has shut down its test on Frank Hammond farm at 2,000 feet for lack of water. In Reading Township, the Mid East Co. is down to 2,800 feet on the Ed Brown farm, Section 15, and in the same section, Shenker & Bowman have spudded in and started drilling a second well on the Kulp heirs farm, No. 1 being good for 1,000,000 feet. In Jackson Township, W. G. Perrigo & Co. have a rig up for their No. 6 on the J. A. and W. E. Donnelly farm, Section 1. G. Berlin and others are drilling on the Mike Emmert farm, Section 9, Reading Township, and have reached 800 feet.

In Athens County, Park Bowers and others have started drilling on the Charles Wood farm, Section 20, Alexander Township. In Carthage Township, the Ohio Fuel Gas Co. is at 900 feet in a second test on the B. A. Barnhill farm, Section 25. In Athens Township, Lot 116, Clark and others have started a test on the J. S. Radford farm. In York Township the Wittmer Oil & Gas Properties have reached 2,100 feet on the Building & Loan property in Section 23, and in the same section the Union Drilling & Producing Co. has started a test on the Charles Contner farm. In Section 24, same township, the Gordon Oil Co. has completed a rig on the Frank Patton farm. In Canaan Township, Charles D. Mosher and others are drilling No. 9 on the Lena L. Bean farm, and in Berne Township Mary J. Smith and others are drilling No. 7 on the Charles C. Curtis farm, Section 33.

WEST VIRGINIA

There were few completions in West Virginia and of these three were small oil wells. In Calhoun County the Virginian Gasoline & Oil Co. completed No. 3 on the Arminda Elliott farm in Sherman district in the Injun sand good for 5 bbls. a day. In Doddridge County, the Pittsburgh & West Virginia Gas Co. drilled No. 4,993 in the Big Injun sand at a depth of 1,870 feet and it will make a 2-bbl. pumper. It is on the Isabella Spurgeon farm in South West district. W. H. Bickle completed his test on the L. P. Wolfe farm in Murphy district, Ritchie County. It reached the Maxon sand at 2,030 feet and will also make a 2-bbl. pumper.

Gas Wells

The best gas well was the Hope Natural Gas Co.'s No. 7,499 on the W. P. Shaffer farm in Lee district, Calhoun County, which was drilled in the Blue Monday sand at a depth of 2,046 feet and showing for over 1,000,000 feet a day. In Gilmer County, the Philadelphia Natural Gas Co. completed a test on the T. B. Webster farm on Tanners Creek, DeKalb district. It is a light gasser in the Injun sand.

In Union district, Harrison County, the Reserve Gas Co. completed No. 805 on the J. H. Sommerville farm in the Speechley sand at 3,058 feet and it is a fair gas well. In Marion County the Owens Illinois Glass Co. has a gas well in No. 141 at a depth of 1,993 feet on the A. W. Snell farm, Grant district.

In Ritchie County, Park Bowser completed No. 3 on the J. J. Morris and J. W. Grimm farm in Murphy district in the Big Injun sand at 2,111 feet and it is a fair gas well. In Roane County the United Fuel Gas Co. drilled a second well on the J. M. Kieffer farm on Rush Run, Smith field district. It is a fair gas well from the Injun sand.

In Smithfield district, Roane County, the Van Oil & Gas Co. has started to drill on the C. E. Vandevender farm, and in the same district the Union Gas Co. has part of the materials hauled in on the Charles Nichols farm. The Central States Gas Co. spudded in and started drilling on the John Patton farm in the same district, and the South Eastern Gas Co. is building a rig for No. 3 on the A. T. Farrell farm. Again in Smithfield district the United Fuel Gas Co. has rigged up to drill No. 1,645 on the Charles Vineyard farm to deeper sands, and its No. 4,281 on the J. A. Keffer farm has reached a depth of 1,850 feet. In Spencer district, Paul Weekley and others have a rig ready on the Gay M. Sergent farm and are getting ready to drill. Here also the Mountain State Gas Co. has taken a lease and is clearing a location on the John T. Morford farm. In Curtis district, the United Fuel Gas Co. has cemented cave in its deep test on the J. W. Hinzman and is drilling at 4,910 feet. In Reedy district, the Wiser Oil Co. is building a rig on the Mary A. Vandale farm.

SOUTHWEST PENNSYLVANIA

In southwest Pennsylvania the T. W. Phillips Gas & Oil Co. has been exploring the valley between Chestnut Ridge and Laurel Ridge in Westmoreland County in the vicinity of Ligonier. It has drilled four wells to a depth of 4,000 feet and plugged them, all being dry. This is short of about 2,500 feet of the Oriskany sand from which some gas was found in a deep test drilled in by the Peoples Natural Gas Co. some years ago. At present the company still has two wells drilling, one about 5 miles south of Florence, which is to the north of Ligonier, one about 4 miles south of that town, but it is stated that it is ready to abandon any further drilling in that region.

There were but two completions in southwest Pennsylvania and both were disappointing. In Middlesex Township, Butler County, the McNanny Oil Co. completed a test on the Mowery Brothers property in the Fourth sand at 1,905 feet and it is a light gas well. In Greene County the Natural Gas Co. of West Virginia completed a test on the A. H. Ackley farm, Richhill Township, in the Fifth sand and at a depth of 3,102 feet it is dry.

TRANSPORTATION TAX CASE

The excise tax on the transportation of oil by pipe line imposed by the 1918 act was not applicable in the case of the Carter Oil Co. vs. Acel C. Alexander, collector, the district court for the Western district of Oklahoma held.

The company erected storage tanks about 12 miles from the field and the oil was moved thereto by means of a pipe line. Such carriage did not amount to "transportation" as that term was used in the law, the opinion held.

An analagous case, the court said, would be the carriage of corn by a farmer to his granary. While that is transportation in one sense, it is not transportation with reference to marketing the grain, and the same rule would apply to the carriage of the oil.

SEEKING MORE OIL

Dr. Rudolph Engelmann of Berlin has a plan to cruise around on the ocean's floor for eight days at depths as great as 6,500 feet, hoping that exploration of the ocean bed may reveal new supplies of mineral resources, among them oil in the form of rich oil shales, some of which, by destructive distillation, yield 125 gallons of oil a ton.

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A row of Cooper-Bessemer verticals direct-driving electric generators in the largest power plant operated by any oil company in the Mid-Continent field.

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YOUR plant auxiliaries . . . electric motor, air compressor, fire pump, centrifugal water pump, oil suction pump, lubricating oil pump, ice machine, lathe, etc. . . . how do you drive them? With electric power generated on the spot, dependably, at low cost? Your answer is certain to be "YES" . . if you direct-drive each generator with a Cooper-Bessemer Vertical gas engine.

Since 1900, the Vertical has been yearly improved in design, workmanship and materials . . . until, today, it has every feature that insures a clean, cool, smooth, and sweet-running engine that will parallel perfectly with additional power units.

You receive your Vertical completely assembled. You install it quickly on a simple and comparatively

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inexpensive foundation. You start it instantly . . . and it keeps on running until you are ready to shut it down. Access is easy. Adjustment is speedy. Attention is minimized. Long life is a certainty.

Cooper-Bessemer Vertical gas engines are built in three bores and strokes. FIRST . . . 11 1-2 x 14" in 2, 3 or 4 cylinders from 75 to 200 B. H. P. (This engine is convertible from gas to diesel . . . or vice versa. The cylinders are cast enbloc with removable liners.) SECOND . . . 14 3-4 x 16" in 3, 4 or 6 cylinders from 165 to 415 B. H. P. THIRD . . . 18 x 20" stroke in 3, 4, 5 or 6 cylinders from 280 to 565 B. H. P. *Write for new Bulletin* . . . "COOPER-BESSEMER VERTICAL GAS ENGINES."

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MOUNT VERNON, OHIO GROVE CITY, PENNSYLVANIA

BRANCH OFFICES IN ALL PRINCIPAL OIL AND GAS FIELDS

Hardin County Most Active in Ohio

Several Wells Drilling and Ready to Start. Southern Indiana to Get Play in Perry County

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Oct. 27.—The usual amount of development work goes along in all divisions of the Central West Field, comprising northwestern and central Ohio, Indiana and Illinois, the most active being the central Ohio area. Completions are scarce in the old Lima Field, although there is a large number of wells under way in Hardin County and reports are that Wyandot County will also get a good play as well as the eastern portion of Hancock County, due to the gas development in the three counties.

In the old Lima Field only two completions were reported, both being gas wells. Five miles north of upper Sandusky, Newcomer & Gregg's test on the James Feeley farm, Section 5, Crane Township, Wyandot County, is credited with an initial volume of 500,000 feet of gas, a slightly greater volume than that in the well recently found on the Harrison Feeley farm by the same operators. Another well will be started as soon as the drilling outfit can be moved to the location. The contract work is being done by Temple & Kennedy, Findlay contractors.

The other gas well was drilled by Zeising Brothers, contractors of Genoa, Ohio, for the Fremont Oil Syndicate on the Mrs. Sarah Baskey farm in Ballville Township, Sandusky County, on a leased block of 1,300 acres. The well is a fairly good gas well at a depth of 1,677 feet, and also had a slight showing of oil. It is a purely wildcat venture which may bring forth a new producing area.

Much lease work is being done along the outer edges of the old Trenton Rock Field on both the north and south sides, and, so far as test work has gone, it shows there is still much untested territory that looks well worth testing.

Hardin County

Just at present the most active new area is that in Pleasants Township, Hardin County, there being several wells drilling and others ready to start up. In this township, Barnaby and others are drilling Nos. 1 and 2 Jacob Kurt farm, Section 6; Wiser Oil Co. is drilling No. 1 Clarence E. Ruhlin, Section 18; M. J. Lynch, drilling No. 2 Newton Martin, Section 9; Pleasant Oil & Gas Co., drilling No. 2 Minnie Burnison, Section 6; Bert Sheldon, drilling No. 1 Fred Kurt, Section 6. Penn Oil & Gas Co. is starting No. 1 L. A. C. Whitmore, Section 5, and No. 1 Jonathan Pats, Section 8, same township. In Blanchard Township, Bert Sheldon is drilling No. 1 Oscar Schwemmer, Section 31. In Cessa Township, Wiser Oil Co. is drilling No. 3 Grant Geiger farm, Section 13. The Kemrow Co. is drilling No. 2 on the Fred Kreitzler 160 acres, same section. Chaney and others are drilling No. 1 Frank Kreitzler, same section, and also No. 1 Frank B. Wilson farm.

In Tymochtee Township, Wyandot County, Jones & Coyle are drilling on the John Higgins, Section 8.

CENTRAL OHIO

A total of 19 wells was reported from the Central Ohio Field, of which 3 were producers with an initial production of 151 bbls., 9 dry holes and 7 gas wells, while 16 new locations were staked and 20 wells are starting up, a total of 36 in new development. The feature well for oil was in Muskingum County with an initial of 145 bbls.

In Ashland County, Orange Township, the Ohio Fuel Gas Co.'s No. 1-5,308 Grace Sauders farm, Section 13, failed to find any Clinton lime, and goes as a dry hole. Same company has a gas producer in No. 1-5,253 Floyd Kick farm, Section 31, Hanover Township. Trout and others' No. 4 Mabel V. Heifner, Section 12, Miflin Township, pumped 5 bbls. from the Berea sand at 615-23 feet. D'Lano and others' No. 3 Melvin Devault, Section 29, Perry Township, was dry at 737 feet, there being no sand found. Same parties are drilling No. 4, same farm. Robinson and others are drilling No. 5 Phillips Doerr farm, Section 16, Lake Township.

In Medina County, Westfield Township, Cammeron and others found a dry hole on the E. and M. Cox farm, Lot 55, after passing through two sands, the first being from 3,145-53 feet, the second sand from 3,190-3,208 feet. In Sharon Township, Ohio Fuel Gas Co.'s No. 1-5,247 Altha Woodward farm, Lots 26-35, was a duster.

In Lorain County, Wiser Oil Co. is drilling on the Terry C. Whitney farm, Lot 48, Pittsfield Township. A. F. Keck and others are drilling No. 1 J. and O. Sims, Lot 9, Carlisle Township.

Wayne County

In Wayne County, Chester Township, Hulse & Kundtz have a gas well on the Peter C. Firestone farm, Section 19, from 3,065-78 feet and Harmon & George are starting a second test on the James Hagerman farm, Section 20, same township.

In Holmes County, Ohio Fuel Gas Co. has a light gas well in No. 1-5,142 A. H. Campbell farm, Section 12, Washington Township.

In Richland County, Worthington Township, the Ohio Fuel Gas Co.'s No. 1-5,269 J. E. Dunn farm, Sections 34-35, found no Clinton lime formation, but found a slight showing of oil above that formation. Same company failed to find the Clinton lime in No. 1-5,307 W. C. Harris farm, Section 25, same township.

In Knox County, Monroe Township, Upham Gas Co. is drilling on the J. J. Smith farm, Section 11.

In Coshocton County, Perry Township, the Preston Oil Co. staked four new locations in No. 1-1,460 Alonzo Vanwinkle, Section 14; No. 1-1,461 W. B. Clark farm, Section 16; No. 1 J. L. Myers farm, Section 6, and No. 1-1,463 George M. Oxley farm, Section 25.

In Summitt County, Franklin Township, Lyons and others are starting a test on the Seibert-McKnight, Section 25. Eagon and others made a location on the Jeremiah Brancher farm, Section 31, Greene Township.

In Licking County, Fallsburg Township, Norpell and others are starting No. 3 W. D. Booth farm, Section 14. The Preston Oil Co. is drilling No. 1-1,456 E. V. Levingston farm, Section 3, Mary Ann Township.

Muskingum County

In Muskingum County, Hopewell Township, the Preston Oil Co.'s No. 1-1,437 E. E. Varner farm, Section 4, produced an initial of 145 bbls. from 3,189-3,239 feet. Same company staked a location for No. 1 on the Marion Leasure farm, Section 6. The Pure Oil Co. is drilling No. 2 Frank McKee farm, Section 6, Jackson Township. Wittmer Properties, trustee's No. 1 Carl W. Riley farm, Section 11, is reported good for 5 bbls. from the Niagara lime formation from 3,135-48 feet, total depth 3,153 feet.

In Athens County, Ames Township, the Ohio Fuel Gas Co. drilled in a gas well in No. 1-5,327 C. W. Henderson farm, Section 4, at 1,473 feet. In Berne Township, Carpenter & Glazier's No. 13 H. D. and C. C. Curtiss farm, fractional Section 33, was a dry hole in the Wolf Creek sand at 83 feet, and No. 14, same farm, is drilling. Clark Oil & Gas Co. is drilling on the J. S. Radford farm, Section 25, Athens Township. Park Bowser and others are drilling No. 3 Charles B. Wood farm, Section 20, Alexander Township. In York Township, Noah Andrews made a location on the William Powell, Section 23, and is drilling on the Charles Cotner, Section 24, same township.

In Tuscarawas County, Washington Township, the Hopewell Oil & Gas Co. drilled in a fair gas well on the Lonidas H. Nook farm, Lot 37.

In Stark County, Lawrence Township, the Penn Oil & Gas Co. got a dry hole in a second test on the William Swigart, Section 2. In Jackson Township, the same company is drilling on the Mary A. Killinger, Section 6, and Kime and others are drilling No. 1 John Firestone, Section 35. In Paris Township, Timken and others are drilling on the A. T. Snyder farm, Section 8.

In Guernsey County, Wheeling Township, the Ohio Fuel Gas Co.'s No. 1-5,196 J. H. C. Brown farm, is a gas well from 3,516-21 feet, and the same company's No. 4-1,448 Lorence C. Stocker farm, Section 12, is a gas well in the Berea sand from 1,238-43 feet.

In Belmont County, Somerset Township, M. Fulton and others are drilling on the Robert Roe, Section 27. A. C. Peters and others' No. 1 W. C. Wheatley farm, Section 26, same township, is a light gas well in the Berea sand from 1,681-88 feet, total depth 1,690 feet.

D. F. Troup and others of Ashland, Ohio, write that their well No. 1 on the Mabel B. Heifner 47 acres, in Section 12, Mifling Township, Ashland County, was drilled to a total depth of 635 feet and after given a shot produced 5 bbls. from the Berea sand. This well is the first one to show production in this section, in the Berea, and looks favorable for a nice pool and is a good grade of oil.

INDIANA

Only one completion was reported from Indiana and was a purely wildcat venture made by Ellis, Thomas and others, 330 feet from the south line and 2,310 feet from the east line of the E. Thompson farm, SW NE, Section 5, Curry Township, Sullivan County, which was dry at a depth of 2,320 feet. This makes the second test for that area, both being dry. In Turman Township, same county, H. H. Huntsman and others are drilling on the Chancey Piety farm, just north of Graysville.

Indications are that shortly the southern portion of the State will get a good play, especially in Clark and Tobin Townships, Perry County, where a number of small pumpers have been brought in from a shallow depth. There are still large areas of untested territory in all parts of Indiana bound to be tested when conditions improve.

ILLINOIS

The best completion in Illinois was found in the Kirkwood sand at 1,648 feet, and was drilled by J. D. Toomey and others in the southeast corner of the Victor Harding farm, NW, Section 12, Dennison Township, Lawrence Coun-

(Continued on Page 92)

OWENSBORO FIELD, KENTUCKY, HOLDS PRODUCTION ABOVE EXPECTATIONS

By George A. Whitney
Staff Correspondent, Kentucky Fields

OWENSBORO, Ky., Oct. 27.—Operators are not speeding up drilling operations in any area of Kentucky, and in the Owensboro Field of Ohio, Daviess and Hancock Counties little work is under way; therefore completions are few. The Owensboro Field is holding up its daily production far above expectations, especially for shallow wells. The Messenger-Inquirer of Owensboro has this to say: "Any doubts of the longevity of the Owensboro oil field were dispelled in quizzes of operators of this field as to what were the chances of the Hart-Barren Field drawing the operators from this field for a probably better location. 'Owensboro's oil field will be drilled for the next 10 to 25 years,' one operator declared, and added, 'I'd rather have a good lot of acreage anywhere in the Owensboro Field than all of the other pools in the State.' Finding a fine flow of oil in what is believed to be the Corniferous, a mile west of Island in McLean County, was pointed to by oil men as a verification of their earliest predictions. There has been drilling in the Owensboro Field only in the shallow sands, as it is much less costly, and until these are pumped dry, which will not be for many years, operators will not go to the heavier expense of exploring the lower formations. In the old Hartford Pool, on State Highway No. 54, between Whitesville and Fordsville, the wells are being cleaned out and will be pumped. These wells, too, are in the Corniferous, which is found at around 1,800 feet in that locality. When the plug was pulled from the first well the oil rose 1,400 feet in the hole and was found to be of a high gravity crude. There is no doubt in the minds of the operators in this field that larger pools will be found in the lower sands, as the geological formations all indicate this, and it needs but larger rigs and more money to find the heavier production. Ellis' exploration in the Island well bears out the contention that this field is as good as many of the other large fields, but it has not been necessary to go as deep.

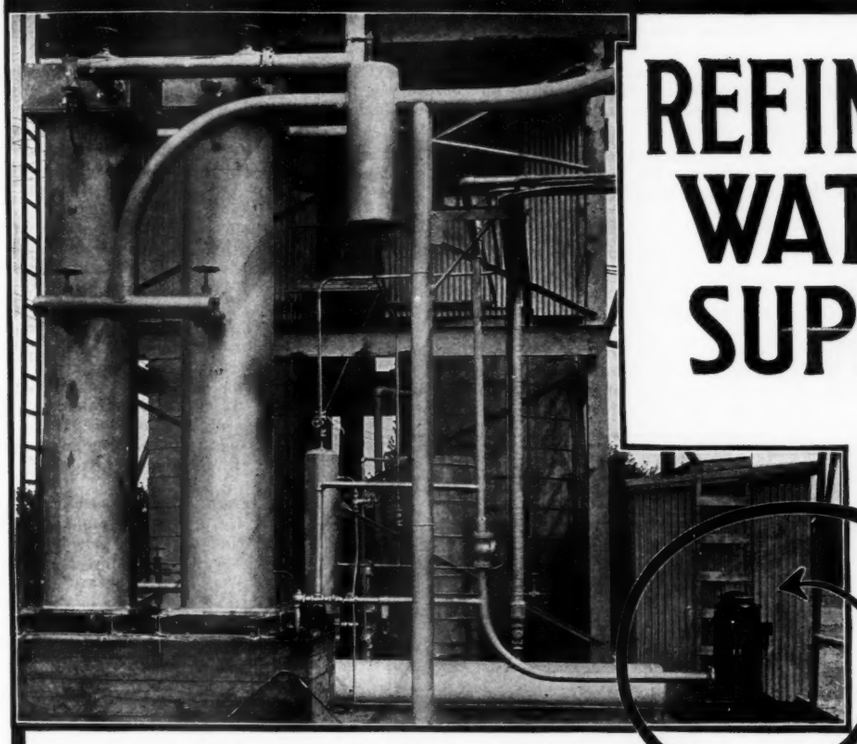
"Drilling in the Island well the tools pierced the sand but 1 foot and the oil rose the 3,350-foot depth of the well, when it was capped in. A few hours later the cap was blown off by the force of the oil and it flowed until it was again capped in. Because of the shutdown agreement prevailing here, Ellis will not attempt to develop the well further as the agreement will not permit new development in the field, all producing wells being required to be capped and wait until the ban is lifted.

"Another excellent indication of the stability of the production of this field, as shown by the pipe line runs, is that there is virtually no reduction of the amount of oil being taken out of the field, notwithstanding the added wells are far below in number and capacity those of the period preceding the shutdown. Several of the heavier producers are curtailing production at the request of pipe lines, while Sunday pumping has been halted entirely."

Ohio County Wells

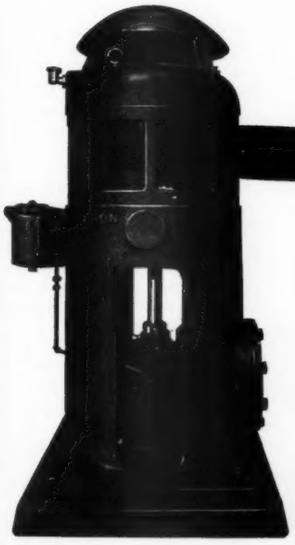
A number of strings of tools are working in various parts of Ohio County, mostly in advance of production, and

(Continued on Page 92)



REFINERY WATER SUPPLY

Byron Jackson Deepwell Turbine Pumps installed in bored wells offer an inexpensive and reliable water supply for industries. This company was the first to develop the deepwell turbine principle some thirty years ago and in the intervening years this pump has been improved and refined until today it is standard equipment with many large pump users. The pumping element is hydraulically efficient without sacrificing strength and ruggedness. The drive shaft is totally enclosed from top to bottom and oil lubricated where it operates in bronze bearings spaced six feet apart. Strongly and simply constructed, the discharge head has the driving motor built in as an integral part. Thrust bearing and adjusting nut are on top of motor, readily accessible. Fine materials and careful workmanship, together with time-tested design, insure years of efficient, trouble-free operation. In addition to Deepwell Turbine Pumps, this company manufactures a complete line of centrifugal pumps for every service. Write or call the nearest branch for information about pumps to meet your requirements.



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CENTRIFUGAL PUMPS FOR EVERY SERVICE

Personal Paragraphs About Oil Men

George S. Wright has recently been elected president of the Western Plains Oil Company.

* * *

A. B. Judd, secretary of the Republic Supply Company of Houston, Tex., is making a business trip through North Texas.

* * *

J. E. Curran, secretary of the Independent Oil & Gas Company, Tulsa, made a business trip to the company's offices at Fort Worth, Tex., during the week.

* * *

R. M. Mason, formerly with the Transcontinental Oil Company, has been placed in charge of an office opened at Houston, Tex., by the Jay Lewis Royalties Company.

* * *

W. C. Merritt was appointed division manager of the Dixie Gas Company with headquarters at Marshall, Tex. The company serves a number of towns in the northeast part of Texas with gas.

* * *

Robert B. Cooper, land department of the Humble Oil & Refining Company, Houston, Tex., has returned from a two weeks' vacation, part of which was spent at his former home in Mississippi.

* * *

E. H. Finch of the Atlantic Oil Producing Company returned recently from a vacation spent in the East. While in Philadelphia he visited the Atlantic Refining Company offices and refinery there.

* * *

A. G. Reed, vice president of the Cosden Oil Company, Fort Worth, Tex., was quite seriously injured in an automobile accident near Fort Worth, sustaining a bad fracture of one shoulder and other injuries.

* * *

C. H. Elstner stopped over in San Antonio, Tex., on his return from Tulsa. Mr. Elstner is the district sales manager for the Naylor Pipe Company of Chicago. His headquarters are at Monterrey, Mexico.

* * *

R. W. Bond, production engineer, Shell Petroleum Corporation, Tulsa, left last week for a delayed vacation to be spent at his old home in Pennsylvania. He will return to Tulsa via Chicago where he will attend the American Petroleum Institute's annual meeting as he is chairman of the division of production for the Mid-Continent district.

* * *

E. R. Wertz, vice president; John Fertig, vice president and general manager, and P. C. Spencer, general council, of the Producers & Refiners Corporation, all of Independence, Kans., found it necessary to go to Calgary, Canada, in 24 hours from Independence. These officials hopped a train to Denver and from there flew to their destination. The trip was necessary owing to a directors' meeting of the recently formed Parco Oil, Ltd., a Canadian subsidiary.

* * *

Frank R. Seaver, general manager, accompanied by Roy Silent, engineer, of the Doheny Stone Drill Company of Los Angeles, Calif., have just returned from a trip through the Mid-Continent, North Texas and Gulf Coast. They spent several days at Tulsa and also visited Oklahoma City, Fort Worth, Dallas and Houston. While in Houston they were entertained by C. F. Van Loosen, district manager and engineer of the company, who has charge of the warehouse at that point.

* * *

Norval White, Pacific Coast representative of the American Petroleum Institute, was welcomed to Los Angeles at a dinner at the Alexandria Hotel. Mr. White, who was formerly located in San Francisco, has recently moved his offices to Los Angeles. The meeting, which was called by A. H. Bell, chairman of Pacific Coast district activities of the A.P.I., brought together all of the central committee members resident in California, the district officers and all topical committees.

Axtel T. Byles, president of the Tide Water Associated Oil Company, has been in California on a business trip during the past week.

* * *

W. H. Strang, deputy supervisor of the Casper offices of the United States Geological Survey, is on an inspection tour in Colorado and New Mexico.

* * *

A. D. Aitken, vice president of the Midwest Oil Company with Denver headquarters, accompanied by Mrs. Aitken, visited the company's Casper, Wyo., offices.

* * *

H. K. V. Tompkins, assistant to the vice president of the Gulf Production Company, Houston, Tex., has returned from a month's vacation spent in the East and in Canada.

* * *

A. W. Weeks, district geologist for the Shell Petroleum Corporation at San Antonio, Tex., has returned from a three weeks' vacation in Michigan, Wisconsin and Illinois.

Men of the Industry

E. A. McCadden

E. A. McCadden, superintendent of the Marcus Hook, Pa., refinery of the Pure Oil Company, has had a wide experience in the refining business. After attending Girard College in Philadelphia, Pa., Mr. McCadden took a course in a business college in that city. His entrance into the refining industry was as a timekeeper in the construction department of the Atlantic Refining Company at Point Breeze, Philadelphia. After about six months he was transferred to the laboratory of the newly completed lubricating department, where he first came in contact with the processes involved in the manufacture of wax and lubricating oil. Mr. McCadden became so interested in this line of laboratory work that he devoted three years to the study of chemistry in the evening school of the Drexel Institute, Philadelphia. In 1907 he joined the Pure Oil Company as assistant chemist in the Marcus Hook laboratory. A few months later he was appointed head of that branch. Later the stills and lubricating treating plant were placed under his sole supervision. From this position he advanced to the superintendency.

Mr. McCadden is active in civic affairs. For 12 years he served as a director of the Public Board of Education at Prospect Park, Pa., where he resides. He is a member of the Kiwanis Club of Chester, Pa., and served as president of this club during 1929.

Walter and Paul Henshaw have returned to San Antonio recently from a business trip to Loving County, Texas.

* * *

Harry C. Hanszen of Houston, Tex., accompanied by Mrs. Hanszen, is spending a short time in New York on a semibusiness trip.

* * *

W. C. Koester, treasurer of the Texas Chemical Company, has moved his office and residence to New York City from Houston, Tex.

* * *

Daniel J. Moran, president of the Continental Oil Company, has left for the home office after spending several days in Los Angeles and San Francisco.

* * *

D. O. Bayless, formerly of the land department of The Texas Company at Fort Worth, Tex., is now on duty at Houston, to which office he recently was transferred.

* * *

H. L. Strader, petroleum engineer of the South Texas division of The Texas Company, Houston, Tex., has returned from a vacation trip which took him to Wyoming and Tulsa.

* * *

Garrett King, for five years in Casper, Wyo., with the Ohio Oil Company, accompanied by Mrs. King and their son, Bobbie, have moved to Illinois where he was transferred by the company.

* * *

Jay F. Vandeventer has been made executive vice president of the Pennzoil Company of Oil City, Pa. Mr. Vandeventer was formerly a resident of Tulsa as assistant treasurer of the Carter Oil Company.

* * *

John McFadyen, William Holland and J. A. Lee, of the Ohio Oil Company, made a tour of inspection of Transcontinental Oil Company properties in the Moffat Pool near Craig, Colo., taken over by the Ohio company.

* * *

R. A. Westbrook, president of the Williamson County Pipe Line Company; E. H. Schroeder, vice president; W. L. Stewart, secretary-treasurer, and Lee H. Gray, also of this company, spent several days in Houston, Tex., inspecting refineries and terminals along the ship channel.

* * *

Dr. Ed. Bloesch, consulting geologist of Tulsa, has returned to his office after about a month spent in the state of Coahuila, Mexico, where he has been engaged in field work for clients. Doctor Bloesch reports conditions in Mexico as very quiet and the attitude of the government toward foreign capital as very favorable.

* * *

Stanley C. Herold, who has been engaged in special work for the Union Oil Company of California for the past several months, and, until recently, arbitrator for Kettleman Hills operators, has established an office at 1202 Chapman Building, Los Angeles, and will engage in independent consulting work, including the valuation of both proven and potential oil land.

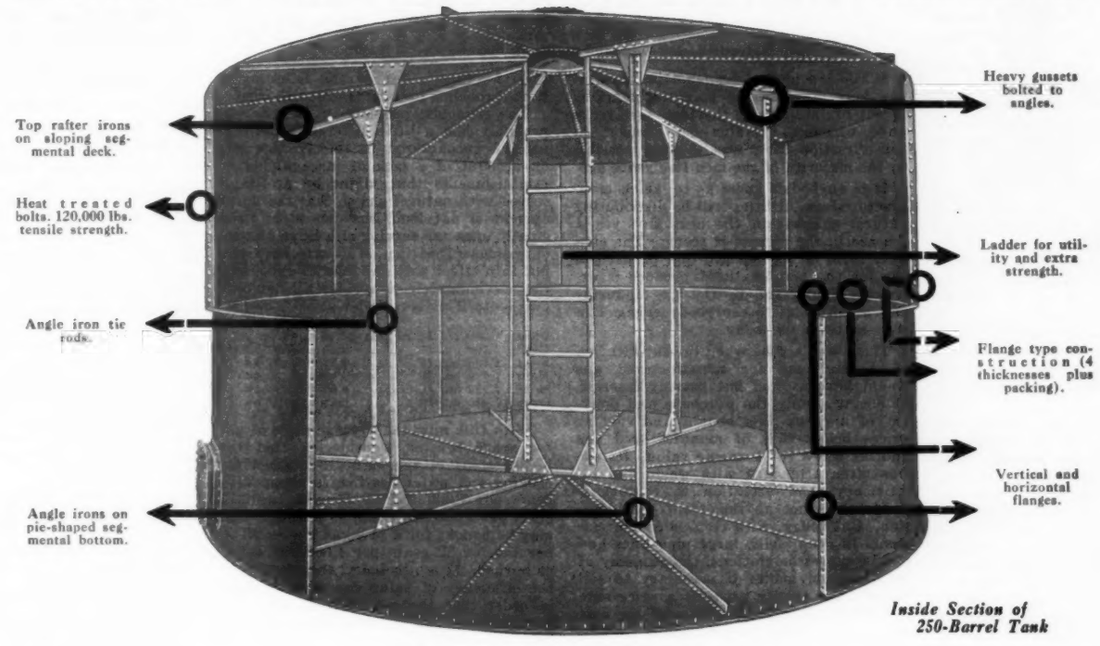
* * *

Silas L. Gillan, prominent mining engineer with offices in Los Angeles, has been elected president of the Engineers Club of Los Angeles, located at 833 South Spring Street. Mr. Gillan succeeds Paul Overton and will have the assistance this year of Harry L. Caldwell, first vice president; Thurston Ross, second vice president, and LeRoy Williams, secretary-treasurer.

* * *

Scott Turner, director of the United States Bureau of Mines, was recently heard over the wireless from Louisville, Ky., speaking on the subject, "The Government's Interest in the Prevention of Accidents in the Mining and Allied Industries." The occasion was the annual International First Aid and Mine Rescue Meet. He next delivered an address before the National Safety Council as part of the general program at the annual convntion at Pittsburgh. The address dealt with the Holmes safety certificate of honor.

"Service on the Dot" *"Service on the Spot"*


Top rafter irons on sloping segmental deck.
Heat treated bolts. 120,000 lbs. tensile strength.
Angle iron tie rods.
Angle irons on pie-shaped segmental bottom.
Heavy gussets bolted to angles.
Ladder for utility and extra strength.
Flange type construction (4 thicknesses plus packing).
Vertical and horizontal flanges.

Inside Section of 250-Barrel Tank

Strength of Structure

The B.S.&B. PERFECTION Vapor Pressure Tanks are built like a skyscraper—they are more than mere shells—there are supports throughout, furnishing a framework for this structure of strength.

A copper-bearing steel is used; the bolts are heat treated, and withstand 120,000 lbs. tensile strength; there are the angle tie rods and the ladder keeping the tank intact, preventing bulging or collapsing, and, in addition, there are double flanges of the staves coming together alternately, horizontally and vertically, forming a network of additional heavy reinforcements.

B.S.&B. Perfection Vapor Pressure TANKS

In addition to the numerous features of these tanks, only a few of which are mentioned above, each is equipped with the B.S.&B. Thief Hole Pressure Vacuum Valve. This safety valve functions automatically, at 16 ounces pressure, or 2 ounces vacuum, and protects the tank, as the tank protects the crude.

These tanks prevent evaporation of the crude, and in addition, the crude itself is maintained at well head gravity, since the lighter fractions cannot escape. The richer the oil, the greater the price paid by the pipe lines.
These tanks are portable, and are made in various sizes.
From a branch to your lease in a few hours' time!

—Wood Tanks for Sour Crude

For the Southwest Texas and Panhandle fields, particularly where hydrogen sulphide gas is dominant in sour crude, we have produced the B.S.&B. Vapor Pressure tanks, made of redwood, with all metal parts insulated with wood. These tanks defy corrosion! Equipped with B.S.&B. Thief Hole Pressure Vacuum Valve.

May we send a man to talk tanks, or a letter or plan relative to your own requirements? Please address Dept. B-35.

EFFICIENT B S & B SERVICE DEPENDABLE

Black Sivalls & Bryson INC.
BARTLESVILLE - OKLAHOMA

Our Watchword QUICK SERVICE

Natural Gas Industry Developments

NATURAL GAS INDUSTRY IS STRIKING EXCEPTION

The natural gas industry is moving against the general trend and showing a steady and substantial widening in volume, according to E. C. Diefenbach, president of G. E. Barrett & Co., and the American Utilities & General Corp.

In a statement on the natural gas situation, Mr. Diefenbach points out that while most other lines have been operating at curtailed capacity, awaiting a more favorable turn to business conditions, natural gas companies have gone ahead with important expansion developments involving the expenditure of more than $175,000,000 and extending over more than 3,000 miles of right and way.

"Orders for these thousands of miles of natural gas pipe lines, as well as others for similar large-diameter pipe to be used for the transportation of oil and gasoline, have provided the principal encouragement afforded the steel industry so far this year," he said.

"A development of possible far-reaching importance to the natural gas industry is the recent ruling of the Illinois Commerce Commission authorizing the People's Gas Light & Coke Co. to bill consumers in the Chicago district on the basis of heat content instead of cubic feet. This new rate basis, which experts hope will eventually be generally adopted here, is in effect in England and corresponds to selling electric power on the kilowatt hour basis. Under it customers will pay for the actual heating value of the gas used, whether manufactured or natural. Under the cubic feet basis they pay the same rate for natural gas as for manufactured gas, with only half the heating value.

"The natural gas industry now is in the stage through which the electric power companies passed in the years following the war. It faces the problem of consolidating its tremendous developments of recent years through the building up of stronger units to stabilize its activities, insure better domestic service and fill increasing industrial requirements. Perhaps the most notable achievement in this direction was the formation early this year of United Gas Corp. into the larger supersystem in the natural gas field, from the standpoint of volume of sales. This new holding company was the means of bringing the Electric Bond & Share interests into this branch of the public utility field and of awakening other strong financial groups to its possibilities. The former feeling on the part of conservative financial leaders that the natural gas industry was too hazardous and restricted to regions immediately surrounding the gas fields, has been dispelled by discovery of numerous new reserves and the improvement of pipe-making and pipe-laying methods which have enabled industrial centers 1,000 miles from the wells to be supplied with natural gas.

"Those strongly identified with the natural gas and oil industries now are confident that within a few years most towns of 10,000 population or more in 36 states will be supplied with natural gas. Remaining potential markets are fast being taken up by the stronger units of the industry. With vast new sources of gas supply still being discovered and better conserved, the fear of exhausting our natural gas reserves in the next few decades is gradually becoming displaced by the conviction held by the most adequate geologists that our gas reserves are adequate for many years to come."

A.G.A. TESTING STATION

The American Gas Association has decided to establish an inspection station of its testing laboratory on the Pacific Coast, and it will be located at Los Angeles.

SUBSTITUTION OF NATURAL GAS FOR THE MANUFACTURED PRODUCT

By George Wehrle
Superintendent Gas Department, Public Service Co. of Colorado*

While the idea of transporting natural gas long distances to potential markets is not of late origin, the past few years have witnessed greater development in this direction than was thought possible by the majority of gas men five years ago.

It is anybody's guess as to which manufactured gas utilities will be distributing natural gas within the next five years. All are in the picture it seems. The subject, then, of the substitution of natural gas for the manufactured product is extremely important to the gas industry and is pertinent to everybody engaged in the gas business today.

There was a time when the substitution of natural gas for manufactured gas would have excited but passing interest. It meant simply the purchase and delivery of a cheap fuel bought and sold at prices below that of manufactured gas and far below its economic value. Its use was often attendant with waste and inefficiency, and attention to customers' service was not an important consideration. But today, with tremendous investments in deep wells, large pipe lines and huge compressor stations, the economy of the situation makes it necessary to sell natural gas at city gates at a price substantially the same per B.t.u. as the cost of producing manufactured gas in modern plants, and the matters of proper rate structures, intensive sales activity, efficiency in the use of gas and good service are as essential to economical and satisfactory operation with natural gas as with the manufactured product.

The substitution of natural gas for manufactured gas today presents problems in certain departments of a gas utility that are different from those encountered in manufactured gas operations. In relating the experiences in Denver, where natural gas was substituted for manufactured gas in 1928, we may give a general idea of the handling of these problems in a representative case.

The economic problem in Denver was probably just a little different from that usually encountered in the average city on account of a lack of large industrial establishments that might be profitably served with natural gas so that the development of our load was dependent principally upon the serving of a large amount of residence heating. The rate that was put into effect was designed to encourage the maximum use of gas for all domestic purposes. This rate follows:

First	400 cu. ft. or less	$0.90	(Min. Bill)
Next	600 cu. ft.	0.15	per C cu. ft.
Next	1,000 cu. ft.	0.12	per C cu. ft.
Next	1,000 cu. ft.	0.075	per C cu. ft.
Next	7,000 cu. ft.	0.06	per C cu. ft.
Over	10,000 cu. ft.	0.05	per C cu. ft.

With this rate, the average price of gas for space heating, considering that the higher steps of the rate are utilized for cooking and water heating, is about 52½ cents per 1,000 feet in Denver, or 63½ cents per 1,000,000 B.t.u. as burned. Coal may be bought for a price as low as $5.50 per ton, or 32 cents per 1,000,000 B.t.u. as burned. It is necessary, therefore, that the efficiency of using gas must be high in order that the competitive fuel price may be sufficiently attractive to get and hold the business.

The industrial rate is given only to customers having standby equipment installed and the contracts under this rate give a prior right to domestic service and carry a cut-off clause. The industrial rate is the same as the domestic rate up to 100,000 feet per month, after which additional steps are as follows:

Next	400,000 cu. ft.	$0.025	per C cu. ft.
Next	500,000 cu. ft.	0.020	per C cu. ft.
Next	1,000,000 cu. ft.	0.018	per C cu. ft.
Next	1,000,000 cu. ft.	0.016	per C cu. ft.
Over	3,000,000 cu. ft.	0.015	per C cu. ft.

The gas sales in August, 1928, which

(Continued on Page 158)

*Before American Gas Association, Atlantic City, N. J., October, 1930.

TEXAS PUBLIC SERVICE ACQUIRES SAN ANGELO

Acquisition of the natural gas distribution properties serving the city of San Angelo, Tex., and surrounding country was announced by the Texas Public Service Co., a subsidiary of Peoples Light & Power and of the Tri-Utilities Corp.

The territory supplied by this system has a combined population of approximately 35,000. In addition to domestic consumers, natural gas is being served for electric generating purposes to West Texas Utilities Co., which is a part of the Middle West Utilities Co. system.

During the past decade the population of this city has increased over 150 per cent, and the number of gas meters in service has more than doubled in the past three years.

SASKATCHEWAN PROJECTS

CHATHAM, Ontario, Oct. 25.—It is announced that the Saskatchewan intercity gas committee, representing the cities of Regina, Saskatoon, Moose Jaw and Swift Current, has retained H. R. Davis to make a report on all phases of the various natural gas propositions submitted by competing companies, including the sources of supply, costs and routes. The four cities are planning to act jointly in awarding a franchise, and their decision will be largely governed by Mr. Davis' report.

A.G.A. AWARD

The American Gas Association announces a special annual award to the member gas company which has made, during the previous calendar year, the most outstanding progress in distinguished public service. This award has been made possible by Samuel Insull, of Chicago, Ill., and will be known as the Samuel Insull award for distinguished public service. The winning company will receive an engrossed certificate suitable for mounting in the company's offices as public evidence of its company achievements, and in addition will be entitled to designate three members of its personnel who may attend one of the special courses for business executives such as the course in public utility management and economics offered during the summer months by the Graduate School of Business Administration, Harvard University, or other courses offered by similar institutions. Those individuals designated by the winning company will be entitled to free tuition and expenses during the period of the course at the institution selected.

WAINWRIGHT GAS CASE

CHATHAM, Ontario, Oct. 25.—The Wainwright Gas Co. is appealing to the Alberta Appellate Court from a decision of the Alberta Public Utilities Commission which some time ago granted reduced rates for the town of Wainwright.

FORM NEW GAS SYSTEM IN THE SOUTHWEST

CHICAGO, Oct. 25.—The formation of a new natural gas system in the Southwest, the Consumers Natural Gas Co., was announced by A. T. Woods, who will head the new company, which is to acquire control of the Pecos Valley Gas Co. in New Mexico, the Gas Co. of New Mexico, the Oklahoma General Gas Co. and the Pioneer Gas Utilities Co.

As a result of the consolidation, the Consumers Natural Gas Co. will own all of the outstanding stocks and other securities of the four subsidiary companies, with the exception of a $475,000 first mortgage bond issue of the Pecos Valley Gas Co. and $441,000 first mortgage bond issue of the Gas Co. of New Mexico and small minority interests in the Pecos Valley Gas Co., the Oklahoma General Gas Co., and the Pioneer Gas Utilities Co.

The Southern Union Gas Co., which has a substantial stock interest in the new company, will exercise management supervision.

NEW GAS CAPITAL

The public has invested approximately $450,000,000 in new natural gas securities in the past seven years, and private financing by leading corporations is estimated to have increased the total new capital raised to $750,000,000. This seven-year period has marked the transition of the natural gas industry from a localized to a nation-wide public utility, researches by G. E. Barrett & Co. indicate.

Although natural gas has been distributed in pipe line systems for more than 50 years and now represents in this country a total investment nearing $2,250,000,000, it is only in comparatively recent years that the public has participated extensively in this form of financing.

COW SHUTS OFF GAS SUPPLY

GARNETT, Kans., Oct. 25.—When protests about lack of gas pressure began to reach the municipal gas office recently inquiries began. A survey of the regulator showed nothing wrong, so word was sent to the fields connected with the local pipe line. A cow was found in a regulator house on the Monitor company's properties. She had bumped against a valve, causing the gas from that field to be shut off.

PAN HANDLE LINE HEARING

SPRINGFIELD, Ill., Oct. 25.—The Illinois commerce commission has taken under advisement the application of the Pan Handle Illinois Pipe Line Co. for a certificate of convenience and necessity to operate a natural gas pipe line in this State. No evidence was presented in behalf of the coal mining interests when the hearing was resumed. L. J. Quasey, counsel for the Illinois Agricultural Association, announced he had no evidence to offer in behalf of the farmers and the hearing was closed. If the certificate is granted the rights of the farm land owners will be determined during subsequent negotiations.

STETTLER GAS WELL

CHATHAM, Ontario, Oct. 25.—A shallow test drilled on C.P.R. property at Endiang, Alberta, has encountered a strong flow of natural gas. If the production holds up it may be piped to the adjacent town of Stettler.

BILLIONS
that once were burned

"Set it on fire. Burn it away," said old-time oil men when a rush of gas as a new oil well came in interfered with the flow of oil. So flaming torches illumined the night, and energy worth billions was wasted on the empty air.

Such waste is no longer dreamed of. Oil and gas engineers have worked out means to squeeze millions of gallons of gasoline from gas found in conjunction with oil. The dry gas left over is piped away for use. Nothing is lost.

In this progress, as in all of the complicated processing operations devised by present-day oil men, Crane valves and fittings have assisted. Crane metallurgical research has developed metals to control highest pressures and temperatures. Crane study of valve and fitting design has developed materials exactly suited to needs at the well, in transporting, in marketing. More truly than any other, the gas and oil industries may be said to have been built on a base of piping materials.

Careful continuous study of advancing gas and oil needs keeps Crane Co. in position to meet any piping material requirements of gas and oil men anywhere. Crane specialists in valves and piping materials are stationed at strategic points throughout the country to advise your engineers about the right materials for the right place. Consult them.

1855
SEVENTY-FIFTH
ANNIVERSARY
1930

No. 343-E Flanged Double Disc Gate Valve. 1000 pound test. For cold oil, water, or gas line working pressures to 500 pounds. Ferrosteel body, bonnet, and discs. Crane special brass mountings.

No. 754 Screwed Double Disc Gate Valve. 700 pound test. For cold oil, water, and gas line pressures up to 400 pounds. Ferrosteel body and bonnet. Crane special brass mountings.

CRANE

PIPING MATERIALS TO CONVEY AND CONTROL STEAM, LIQUIDS, OIL, GAS, CHEMICALS

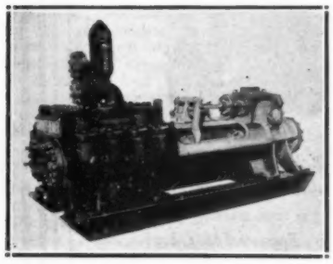
CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Ninety-six Cities

Oil Field Equipment and Supplies

GARDNER-DENVER MUD PUMP HAS 16 VALVES

A new 16x8x24 mud pump introduced by the Gardner-Denver Co., Quincy, Ill., has 16 small valves instead of 8 large ones. The new valves are light-weight, with large passage area, rubber insert, and steel-to-steel seat. All valve ports and passages are circular in section. The valve ports are smaller, with consequent



greater strength; suitable for high pressures.

The change from 8 large heavy valves to 16 small light-weight valves reduces the impact due to the valves closing when the pump is in operation, according to the company. This is said to mean less shock, less wear and less noise. Each valve is located in a separate chamber with independent fluid passages, eliminating wash-over of mud from one valve to another.

Steam cylinders and cradle are cast integrally for perfect alignment with exceptional strength and rigidity. The pump is supported by substantial feet under the cylinder end. The steam cylinders are designed for 350 pounds pressure. Balanced piston type steam valves are unusually tight and operate with minimum friction under the high steam pressures.

The new mud pump has a divided fluid end, two separate castings, with no internal baffles or walls. Replacement cost is reduced in case of breakage. The guaranteed working pressure is 1,500 pounds, but a shop test of 3,000 pounds hydrostatic pressure is given each mud pump passing final test.

The fluid end is rigidly supported by substantial feet with liberal bearing area on skids. The suction manifold does not act as a support. The heavy "H" beam skids facilitate moving the pump and require only a simple foundation. The pump has a large over-size air chamber. All valve gear moving parts are lubricated by alemite lubrication connections. Steam valves and cylinders have force-feed mechanical lubricator.

OIL COMPANIES PUT IN WELDING REPAIR SHOPS

"Oil companies establish welding shops to effect satisfactory repairs and also to keep their men busy during times when pipe line construction is slack," says the October Oxy-Acetylene Tips, published by the Linde Air Products Co., New York.

"For these reasons a southwestern oil company maintains a compact and well-equipped welding shop. Here are made specials for pipe lines, belt guards and other pieces of equipment. Broken apparatus and machinery, varying from small castings to enormous engines, are repaired. This shop keeps busy at all times, and helps to maintain the welding crew intact when not needed for overland pipe line work.

"Among the interesting jobs done by the welding shop is the construction of welded piping for the company's natural gas compressor stations."

ELECTRICAL WELDING ONLY EMPLOYED IN NEW PLANT

When the need of larger facilities made it necessary for the Wilson Welder & Metals Co., Inc., North Bergen, N. J., to build a new plant, it not only took the opportunity of building a scientifically laid-out factory, from the standpoint of production, but also of erecting, for themselves, a structural steel job in which electric welding was used exclusively.

The building is of steel and brick construction. All welding was done in accordance with American Welding Society specifications. The columns and beams were fabricated by arc welding in the structural steel shop and transported to the factory site, where the cross-beams were electric welded to the uprights.

Electric welding is said to have effected a saving in the tonnage of structural steel used and in the cost of both fabricating and erecting, and to have resulted in stronger and neater joints.

In addition to the structural work, the boiler, tanks, tracks and supporting hangers for the portable crane monorails were arc-welded. This saved in the weight of steel used and the cost of installation. All work benches, bins and racks were arc-welded.

Included in the equipment is a complete up to date laboratory, which, together with the engineering department, is at the disposal of the industry. In addition, the company is operating a welding school where a course in arc-welding is offered to employes of users of Wilson products.

VALVES FOR NEW PIPE LINES

The new pipe line of the Missouri-Kansas Pipe Line Co. from southwest Kansas to Indianapolis will include many valves of the lubricated plug cock type. The larger of these valves will be used as main block valves for by-passing compressor stations and also on the inlets and outlets to compressors and compressor by-passes. Additional applications will include the gas cooler lines and scrubbers, air-starting valves and tower valves on the engines and drip valves along the main line. The new natural gas line from the Panhandle of Texas to Chicago being constructed by the Continental Construction Co. will also be equipped with 24-inch cast steel lubricated plug cocks of the Venturi type as main block valves at the compressor stations. The drip valves on the main line will also be lubricated plug cocks. Commitments for the manufacture of these valves have been received by the Merco Nordstrom Valve Co., San Francisco.

NEW SEMIAUTOMATIC WELDER

An improved portable, semiautomatic arc welding equipment announced by the General Electric Co., can be used for either open or shielded arc welding. A simple adjustment, requiring only a few minutes, is all that is necessary to make the conversion. The equipment consists of a welding head for feeding the electrode, an enclosed line contactor with interlock and a field rheostat for controlling the motor on the welding head, as well as a welding tool and lead for directing the electrode toward the work. The welding head is simply a motor-driven wire feeding device to supply electrode wire continuously to the arc. The wire is drawn from a reel by means of a pair of geared feed rollers propelled through a train of gears by an adjustable speed, 60-volt, direct-current motor. The head is equipped with a gear shift for obtaining approximately the required rate of wire speed, the final adjustment being made by means of the motor field rheostat.

NOTES ABOUT TRADE LITERATURE

The Stacey Brothers Gas Construction Co., division of the Stacey Engineering Co., Cincinnati, Ohio, has issued Bulletin No. 32 covering Stacey high pressure "bullets," other holders and products.

A bulletin sent out by the Landis Machine Co., Inc., Waynesboro, Pa., describes the Landex head for use on automatic screw machines and other machines employing a rotary pull-off type head. It shows also the Landex head with internal tripping mechanism as well as the application of this type of head to various makes of automatic screw machines.

A bulletin issued by H. O. Swoboda, Inc., Pittsburgh, Pa., describes Falcon electrically heated vertical coating tanks for asphalts, tars, oils, etc.

The General Electric Co. is mailing bulletins on low-speed synchronous motors and phase protective panels and a booklet on "GE Welding Electrodes."

"The Era of Automatic Control" is the title of a 32-page booklet published by the Brown Instrument Co., Philadelphia, Pa., dealing briefly with control instruments used in the refining and pipe line industries, etc.

The Caterpillar Tractor Co., Peoria, Ill., has prepared a 68-page illustrated booklet on "Building Roads Better, Quicker and Cheaper with Caterpillar Track-type Tractors and Road Machinery."

The Reed Roller Bit Co., Houston, Texas, is sending out a catalog covering all of the articles of its manufacture, with prices. The catalog explains improvements recently made on the company's rock bits, reamers, core bits, wire line bit and Barrett-Robishaw drilling-coring bit.

The Mine Safety Appliance Co., Pittsburgh, Pa., is sending out the M-S-A first aid materials catalog, a 36-page booklet profusely illustrated and covering the complete line of first aid materials manufactured by this company.

The Fusion Welding Corp., Chicago, has published a circular describing its Weldite green surfaced electrodes for metallic arc welding of mild steel.

L. L. MACHIA IN CHARGE OF FORT WORTH OFFICES

The Climax Engineering Co. has established Mid-Continent headquarters in Fort Worth, Tex., under the direction of L. L. Machia, manager of oil field equipment sales, formerly located at the company's factory office in Clinton, Iowa.

E. H. Crippen, of Fort Worth, will continue to assist Mr. Machia in Texas,

L. L. Machia

New Mexico and Louisiana, and Forrest B. Dunlap of Tulsa, who recently joined the Climax oil field staff, will act as district manager for Oklahoma, Kansas, Arkansas and Colorado.

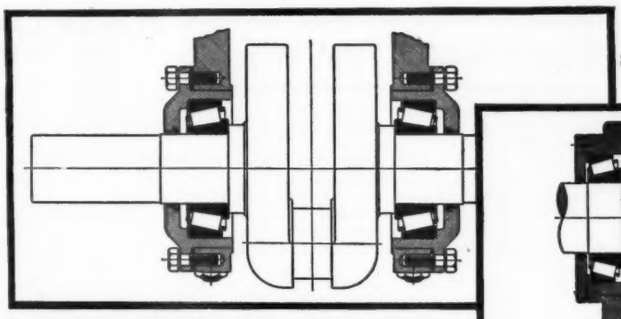
During the last two years the Climax Engineering Co. has brought out nine new models of heavy-duty, multicylinder gas, gasoline and distillate burning engines, ranging from 35 to 225 horsepower, all announced as the Blue Streak, valve-in-head series. The various engines in this line, according to Mr. Machia, are available with specially designed mountings and equipment for both cable-tool and rotary drilling; gas-air lift; auxiliary electric generator sets; and for deep-well pumping or servicing applications where either standard rigs, rig-fronts or gear units are used.

COMPETITION IS ANNOUNCED

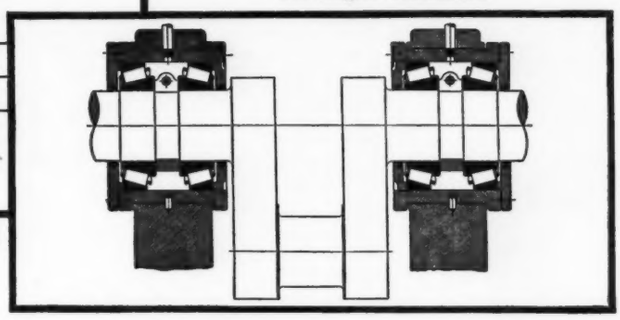
Designers and engineers in every industry, where iron and steel form all or a part of the manufactured product, are again given the opportunity by the Lincoln Electric Co., Cleveland, Ohio, sponsors of the second Lincoln arc welding prize competition, to show their skill and ingenuity in utilizing the advantages of arc welded construction. Prizes totaling $17,500 will be awarded for the best 41 papers submitted. The jury of awards will be composed of the electrical engineering department of Ohio State University under the chairmanship of Prof. Erwin E. Dreese, head of the department, and such others as he may select.

TORPEDO COMPANY ORGANIZED

The Morris Oil Well Torpedo Shooting Co., recently organized, has opened headquarters in Houston, Texas. The company will manufacture and distribute a new gas torpedo for cleaning wells. The device was invented by Ira A. Morris of Liberty, Texas. Associated with him in manufacturing the device are W. P. Morris of Fort Worth, Texas, his father; M. P. Whitcomb, Bob Speer, L. V. Hightower, and O. P. Ballio, of Liberty.



Standard 2-Bearing Mounting for Timken-Equipped Gas Engine Crankshaft.



Standard 4-Bearing Mounting for Timken-Equipped Gas Engine Crankshaft.

Increased Engine Power with Timken-Equipped Crank-Shafts

Gas and steam engines intended for oil-field service must have the ability to deliver the full power required for the job—and to deliver it continuously with very little attention for lubrication or maintenance.

Above all, they must be *dependable.*

Engines with Timken Bearing Equipped crank-shafts are showing the way to meet modern power demands in all kinds of oil field service through the only combination of mechanical features that meets all modern anti-friction requirements... the exclusive combination of Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken-made steel.

By eliminating crank-shaft friction, more power is delivered at the point of application, lubrication becomes negligible, definite fuel economies are realized and bearing burn-outs are abolished.

But it is not only a question of frictionless operation. Timken Bearings also preserve crank-shaft alignment and rigidity, protect the crank-shaft against uneven cylinder pressures, torsional strain, whip and wear, overcome radial, thrust and resultant loads, minimize vibration and add years to engine life.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Oil Field Equipment and Supplies

OIL-FIELD PADLOCK IS SAID TO BE PRY-PROOF

A group of Tulsa men headed by Mike Jankowsky has purchased the Unit Lock Co. factory on the outskirts of Sapulpa, Okla., and have reorganized that company as the Unit Standard Lock Co. This company manufactures padlocks said to

be pry-proof and suited for use in the oil fields. Its customers include the Standard Oil Co. of New Jersey, Carter Oil Co., Skelly Oil Co., Indian Territory Illuminating Oil Co., H. F. Wilcox Oil & Gas Co., Continental Oil Co., Twin State Oil Co., Shell Petroleum Corp., Prairie Oil & Gas Co., Tidal Oil Companies and others.

A locking system is worked out for each individual user that is best suited to his own peculiar needs. As Unit padlocks have 999,999 different kinds of combinations on which to base a locking system, each customer's system is distinctly his own. Intricate records of each customer's locking system are kept, and as additional protection to users, key blanks for Unit padlocks are not furnished to locksmiths, but can be obtained only at the company's plant

SULLIVAN BULLETINS ISSUED

New bulletins being sent out by the Sullivan Machinery Co., Chicago, describe diamond drilling equipment, core drilling by contract, Sullivan GV pipe line painter, compressed air or steam cathead, Turbinair portable hoist, electric lighting plants and rotator hammer drills. The Sullivan core drill contracting department was organized in 1884, as the Diamond Prospecting Co. In 1892 it became the core drilling department of the Sullivan Machinery Co.

STEEL REELS ANNOUNCED

Steel reels which are said to be immune from shrinking, swelling or splintering and from damp or dry rot, have been developed by the pressed steel division of the Truscon Steel Co., Cleveland, Ohio. Features of the new steel reels include a rigidity, strength and durability which are said to insure almost indefinite life. Construction of the reels has been perfected with a view of allowing easy inspection, marking, labeling and spray painting. They can be stored either indoors or outdoors without changing weight due to weather conditions.

AMONG THE EQUIPMENT HOUSES

Driftmeter, Inc., Tulsa, has received an order for a Driftmeter Junior, a device for measuring the crookedness of a hole, for shipment to Nchanga Copper Mines, Ltd., in far-off Beira, Portuguese East Africa.

The Lincoln Electric Co., Cleveland, Ohio, manufacturer of "Stable-Arc" welders and "Linc-Weld" motors, has appointed W. S. Stewart, formerly in charge of the Pacific Coast offices, district manager in charge of the Cleveland territory.

The Merco Nordstrom Valve Co. has opened an office in Charleston, W. Va., under the management of H. D. Ruos.

The Cameron Iron Works has let a contract to the Truscon Steel Co. for the erection of a one-story steel factory building as an addition to the company's present plant in Houston, Texas. The building, 120x86 feet, will cost $10,000.

The Standard Oil Field Supply Co. of Houston, Texas, has purchased the site and warehouse in the North Side industrial district of that city which it formerly leased. Morris Rauch is manager of the company.

STEEL ROTARY HOSE IS FLEXIBLE AND STRONG

The Hamer hydraulic rotary hose joints made by the Hamer Air Tool Co., Ltd., Long Beach, Calif., are not only of all-steel construction, but are so designed that they have excess strength combined with a minimum of weight. All bearing surfaces are grease-lubricated and the fittings are protected from external damage by protecting ribs on the joint body casting. A pressure packing ring prevents grease from escaping around the bearing and also protects the close fitting surfaces from dirt and grit.

Flexibility is obtained by joining the steel castings together with a high-grade ball bearing. This not only holds the two together, but is designed to assure long life. This type of construction allows an opening through the joint considerably larger than the pipe, thus permitting an unobstructed flow of fluid.

All castings used in Hamer steel hose are made of electric steel. The hose between the joints is built of regular drill pipe. Heavy threads are used on the connections between the castings and drill pipe, and laboratory tests have been made up to 6,000 pounds pressure.

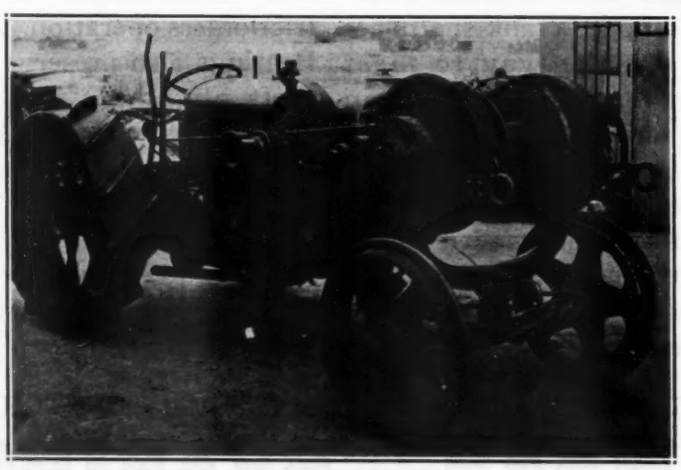
VAPOR PRESSURE TANKS OF STEEL AND REDWOOD

The Perfection vapor pressure tank manufactured by Black, Sivalls & Bryson, Inc., Bartlesville, Okla., is made of copper bearing steel and also of California redwood for those fields in southwest Texas and the Panhandle where hydrogen sulphide gas is found in sour crude. These wood tanks, according to the company, defy corrosion.

Both the steel and the wood vapor pressure tanks are equipped with a special B.S.&B. thief hole pressure vacuum valve, which operates at 16 ounces pressure, or 2 ounces vacuum, and thus protects the tank, as the tanks protect the crude.

The bolted steel tanks are of flange type construction, with four thicknesses of metal and a special packing to make them vapor pressure tight. They contain angle iron tie rods, a special ladder for service, and added strength, a sloping deck, heavy tie rod gussets, bolted to top rafter angles and bottom angles. The arrangement of the staves with alternating horizontal and vertical seams adds still greater strength.

HEAVY-DUTY WINCH FOR THE NEW FORDSON ANNOUNCED



W-K-M Co., Inc., of Houston, Tex., is making an improved series of heavy-duty winches for the new Fordson tractor. Designed primarily for oil field rod and tubing pulling, the machine, however, has utilities in other fields of handling activity. The company recommends it for pulling stumps, logs, steel girders, clearing land, or any similar pulling. The unit is mounted on the front end of the Fordson tractor and controlled from the tractor seat. Arrangement is made for controlling the winch from a position immediately in front of the mechanism.

Rated pull on a double line is 18,000 pounds. A substantial reserve of power is guaranteed by W-K-M after this rated maximum is reached.

CLAY ENTERS SERVICE OF TRUSCON STEEL CO.

Wharton Clay, who has joined the Truscon Steel Co. of Youngstown, Ohio, has been, successively, sales engineer of the United States Gypsum Co., commissioner of the Associated Metal Lathe Manufacturers, organizer of the National

Wharton Clay

Council for Better Plastering, a contributor to various architectural and trade publications, and has written or collaborated on several books pertaining to lathing and plastering.

Mr. Clay will help promote the friendly service which Truscon extends to the profession and trade, will contact larger projects which involve permanent building products and will develop fields for the application of new ideas in up-to-date merchandising.

BLAIR COMPANY OFFERS NEW HYDRAULIC DIGGER

The W. M. Blair Manufacturing Co. of Chicago has announced a Blair hydraulic digger for Allis-Chalmers Model U tractors. This unit can be mounted on either wheel or crawler industrial models.

A bucket of one-half yard capacity handles 20 to 25 yards of loose bulk material per hour. It will pick up loose material such as ashes, crushed stone, or dirt, carry it 100 feet and dump it at the rate of 15 to 20 yards per hour. It is used for handling material on road construction, excavation work, snow removal, etc.

The pump on this digger is mounted on the side power take-off of the tractor. The cylinder is of Shelby seamless steel tubing with a 5½-inch piston. Total lift of the digger is 90 inches and dumping clearance 6 feet 6 inches. Blair hydraulic diggers are distributed by most Allis-Chalmers tractor dealers.

JOINS PITTSBURGH EQUITABLE

The Pittsburgh Equitable Meter Co. announces that Garrett B. Linderman, Jr., has joined its organization and will be located at the main office in Pittsburgh, Pa. Mr. Linderman, who was for a time connected with the Bethlehem Steel Co. and more recently with the metric metal division of the American Meter Co., is a Lehigh University man and is well known in the gas industry. The Linderman orifice meter is primarily his invention.

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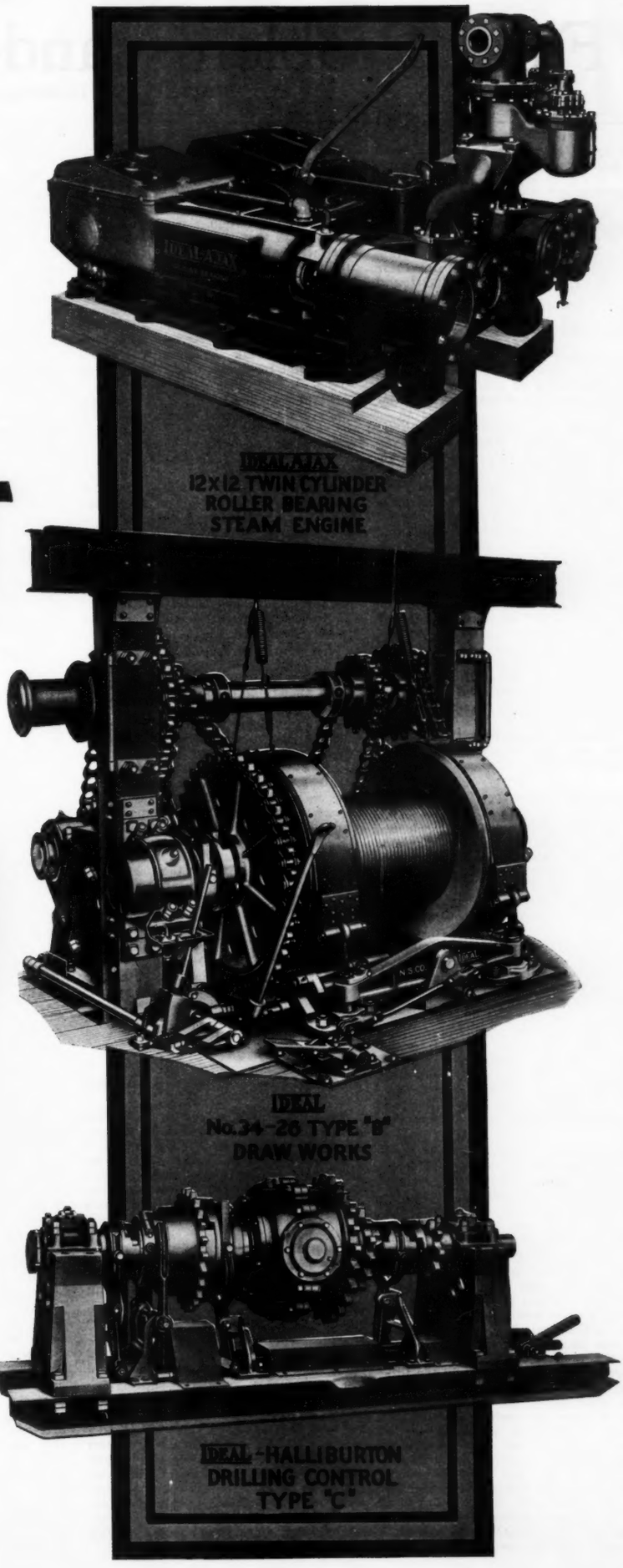

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

VARYING WEIGHTS OF MUD

Do drillers follow some fixed rule regarding the weight of mud used in rotary drilling? It would seem to me that heavier mud would be required in a deep hole than in a shallow one. Is the same weight of mud used throughout the whole depth of a hole?—W. S. O.

Generally speaking there are many things about rotary mud that the rotary driller has to learn, for while his experience has taught him what he had best use under certain conditions, still it is not possible for anyone actually to determine what happens to this mud when in the hole. The rate of progress in drilling is the only determinable feature of rotary work, and what may hasten or retard this rate of drilling may be ascribed to many things as each driller has his own opinion based upon his own experience.

Theoretically the weight of the mud should be increased as the well is deepened, but in actual practice the weight of the mud must be determined by the pressure to be handled in the underground formations, which may not increase at a definite rate with depth.

Mud will plug off gas and oil in a sand by some mechanical means, and it is assumed that the mud plasters the walls of the hole much as a plasterer puts plaster made of lime, sand and water on the walls of a building. The rotation of the drill stem in the hole is supposed to spread this mud on the walls of the hole and force it into the openings in the formation. This probably does happen but on the other hand, the velocity of the mud as it leaves the ports in the drilling bit under very heavy pressures would tend to force mud into the pores in a sand by hydraulic pressure and velocity and if this is the case the sand pores are actually sealed before the drill-stem comes in contact with them.

Mud is the medium through which the cuttings from the formations being penetrated are carried to the surface and discharged into the slush-pit. The force of this mud under conditions found in drilling wells is sufficient to carry particles of rock much larger than the space between stem and wall would permit to pass, but examination of cuttings at some wells shows that they have been reduced to relatively fine sizes. Where this grinding action takes place is difficult to determine, but if it could be avoided it would mean a saving of much power, for the energy required to grind sandstone or limestone to 60 or 80 mesh size and even finer is much greater than the work required to break the stone into pieces that would remain upon a ¼-inch mesh screen.

In the Oklahoma City field about 20 admixtures were used to make mud of the character that the driller thought he required for a certain condition, but it is not certain that all of these admixtures possessed the qualities the driller thought he should have in his mud. He determined the condition of his mud largely by weighing a gallon of it and this sample gallon might be selected from any convenient place near the derrick floor without regard to the changes that were constantly taking place in the mud mixture as it traveled through long slush pits, over and under baffle boards and finally back to the suction pit from which it was returned to the well.

With the exact knowledge of colloids, clays, non-metallic material obtainable from other industries and the application of mud-handling machinery properly to prepare these materials for any required use, the petroleum industry should avail itself of this knowledge and apply it to particular problems, for rotary mud is not just "mud" but when it is mixed with gas, oil and water in a well it may take on properties of film tension, static charge, and other physical changes that could be corrected by the use of a chemical instead of trying to bring the mud back into condition by elementary methods involving energy and the use of machinery rather than the application of known physical laws to the problem at hand.

It is predicted that in a relatively short time the rotary mud problem will be receiving careful consideration by technicians and chemical engineers who will be working hand in hand with the production superintendent and petroleum engineer to the end that cost of drilling rotary holes may be lowered as well as actual rate of drilling speeded up.

METHODS OF COOLING WATER

Several methods of cooling water for use in oil refineries and in other departments of the oil business are in use, I believe, although the spray pond is the only one I ever have seen or have heard about. Can you tell me what other methods or devices are used and which is regarded as the best?—F. S. L.

The simplest answer to your problem is to refer you to an article in The Oil and Gas Journal of August 14, 1930, where on page 41 you will find a full description of several methods other than spray ponds that are now in use in the petroleum industry for cooling water.

Cooling towers, of the chimney and open atmospheric types; open ponds and fan towers are a few of the methods discussed and there are numerous combinations of these several methods used to get cool water.

Spray ponds are satisfactory where plenty of water is available and ground values are not high. They do not cool the water as much as other methods but where a large volume of water is available the lack of low temperature is made up by using more water in the cooling operation.

FOR SAMPLES OF CUTTINGS

The company for which I work is going to adopt some new rules, I understand, about its well records. It has been the practice for the driller to keep a daily log, but I understand they are going to turn this work over to a geologist and that the driller will be asked to keep a good record of the cuttings as he goes through the various formations. I keep samples of the cuttings now, but not in a very systematic way, and I wondered if you could tell me how these cuttings samples are kept by the big companies. The record should show the depth we get the cuttings from.—R. Y. E.

You may find a sufficiently full answer to your question in an article published in The Oil and Gas Journal February 13, 1930, which describes the system used by the Sinclair Oil & Gas Co. in the Oklahoma City Field where the field geologist examined cuttings from every well in that pool and kept a careful log of all holes as drilled.

The selection of cuttings to form a sample for the geologist can be done in several ways, but it is probable that by applying the sampling methods used in ore dressing and sampling plants in the mining regions you would get more accurate samples than "grab" sampling as now practiced.

In grab sampling there is a good deal left to chance and the judgment of the driller or his helper who actually takes the sample is depended upon to a large extent as to how and when he should select samples.

Wherever the personal equation enters into a problem of sampling, no matter how simple or apparently insignificant, it has been found by many experiments in ore sampling that accuracy is sacrificed. It is practically impossible for a man to hand cut a sample without using some degree of judgment in his selection of material to keep or to reject.

When to this tendency of the operator to select samples in accordance with his judgment are added the rather crude mechanical appliances used in sampling a stream of mud and cuttings at a rotary well there is opportunity for improvement and criticism.

If the petroleum industry would take advantage of the practices and equipment developed in the ore dressing plants in the mining industry for sampling it would be possible to place at the well devices that would select accurate samples of all cuttings made in drilling and so to get them as to permit closer correlation as well as establishing the thickness of formations penetrated more accurately than is now possible.

WHY WAS IT CALLED THAT?

IGNEOUS ROCKS

The derivation of the word igneous, pertaining to fire, is seen readily, coming as it does from the Latin "ignis," fire. Igneous rocks then are rocks which at some period in the earth's formation were subjected to fire or intense heat and were in a molten condition. Such rocks are granite and lava. Igneous rocks sometimes are called plutonic rocks, the word "plutonic" referring to the theory that the successive layers of rocks that make up the earth's crust were formed by igneous fusion.

ELECTRIC CORING METHOD

A reference to an electric coring method of making well logs leads me to ask for information on the subject. As I understand it, the method does not involve the use of an electrical device, but rests on varying resistance of the underground formations to electricity. Can you tell me definitely what the method is?—O. E. A.

The Schlumberger method of electric coring was devised by two French engineers, Conrad and Marcel Schlumberger, and it has been used to some extent in France and Venezuela with tests in Oklahoma, Kansas, Texas and California.

Briefly, the method depends for its operation upon the specific resistivity of rock and this resistance has been found to be: (1) Conversely proportional to the quantity of imbibing water contained in a cubic meter of rock; (2) Proportional to the resistivity of this water, therefore roughly inversely proportional to the total quantities of salts dissolved per unit of volume of the water.

An electric current of known strength is provided at the surface above the well and it is carried into the well through a wire lowered into the hole and weighted with a plumb-bob. This charge of electricity is returned to the surface by two other wires that are connected with a potentiometer. The plumb-bob acts as electrodes and send the current into the rock and it returns to the wires connecting with the potentiometer at the surface by flowing through a known section of the formation.

By measuring the differences in resistance set up at different points in the well and interpreting these variations it is possible to log the well and indicate the thickness of the strata. With some knowledge of the geology of the area in which the well is located it is possible to correlate formations quite accurately. It is necessary to do this work before casing or tubing is run into the hole, or if it has been run it must be lifted while the electric coring work is going on.

For further details it is suggested that you get a copy of The Oil and Gas Journal of February 6, 1930, in which the method is described.

AIR BRAKES ON DRAW-WORKS

Would you be kind enough to advise the writer why air brakes are not used on draw-works for rotary drilling? It seems that a locomotive type brake would be more efficient and economical than the present prevailing type using asbestos lining, etc.—R. L. B.

The locomotive type of brake has a metal shoe, which it is said would be objectionable around an oil well because of the possibility of sparking in the presence of gas from the well. However, the use of air-actuated brakes for draw-works is being tried out in California and it is a development of rotary equipment that probably will be carried on to some definite conclusion by manufacturers. There is no apparent reason why the type of brake used on large mine hoists cannot be applied to rotary draw-works brakes and it is along this line that California manufacturers are now working.

There is sufficient data to be had from other industries on braking problems to permit the petroleum industry to make brakes controlled by air or steam-actuated pistons and whether they are of the post or band brake type will be matters of details that the designing engineers will work out to suit their particular machines.

The oil industry seems to have been slow to take advantage of the work of engineers in other industries on braking problems but there are signs that they are beginning to make use of these data.

IN THE DESIGN

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Among advantages that add immeasurably to the service of Axelson Sucker Rods is the design of the...ROD TAPER. Strength is added where strength is needed.

The straightening of a line, the rounding of a corner, faithfully adhered to in manufacture, means the difference between fatigue failure and long service.

Pumping strokes set up vibratory stresses in the tapered portion of a sucker rod directly below the wrench square. To rectify this condition and reduce the possibility of fatigue fractures, Axelson forges more metal into this portion of the rod. A small thing ...yet one which means longer service to the operator.

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The magnified view on the left shows the ordinary sucker rod with the extreme taper below the wrench square which invites rapid fracture. On the right is illustrated the tapered shoulder of the Axelson rod with more metal forged into the rod where vibratory stresses naturally come. Note the elimination of the acute angle in design.

AXELSON SUCKER RODS

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

HYDROGEN SULPHIDE IN TREATED GAS

We are going to wash wet gas with caustic soda solution to remove hydrogen sulphide. In order to tell when this caustic soda solution should be changed what is the best method of testing the gas? If we allowed the gas from the discharge side of the wash tower to bubble through doctor solution with small amount of sulphur in it, would this tell when to make the change? The gas from the tower is then compressed and fractionated and we do not want to wait till liquefied before testing.—P. H. Z.

The exact control of hydrogen sulphide removal from a gas requires very careful inspection by a qualified chemist. The ordinary tests, such as may be made with a 5 per cent solution of lead acetate, are not delicate enough to rapidly detect the small quantities of hydrogen sulphide that may be passed through the scrubbers. It is considered good practice to discard the caustic solution somewhat short of complete exhaustion.

The chemical reactions involved may be explained by these equations:

Fresh caustic (NaOH) + Hydrogen sulphide (H_2S) = Sodium sulphide (Na_2S) + Water (H_2O)

$$(1)\quad 2\,NaOH + H_2S = Na_2S + H_2O$$

Sodium sulphide (Na_2S) + H_2S = Sodium hydrosulphide (NaHS)

$$(2)\quad Na_2S + H_2S = 2\,NaHS$$

Sodium plumbite (Na_2PbO_2) + 2 H_2O = lead sulphide (PbS) + 4 NaOH

$$(3)\quad Na_2S + Na_2PbO_2 + 2\,H_2O = PbS + 4\,NaOH$$

In the presence of a large excess of sodium hydroxide, (NaOH), as in (1), the sodium sulphide is formed; then, as the free caustic is converted to a solution containing sodium sulphide further absorption of hydrogen sulphide, as in (2), causes the formation of the sodium hydrosulphide. If the operation were confined to single lots the highest efficiency could be attained by continuing the wash solution until analysis indicated all of the sulphur in the form of NaHS, but in the usual continuous operation this cannot be so closely controlled. This is the reason why it is advisable to introduce fresh caustic shortly before exhaustion.

It is not necessary to use a small quantity of powdered sulphur in the doctor solution when testing for hydrogen sulphide alone, as in (3), because all of this gas will combine as illustrated. If it is desired to test for the mercaptans in addition, then the complete doctor test should be used. As indicated, the operation should not be continued until a darkening of the plumbite solution appears, or at least not beyond a very slight coloration.

Portions of the gas should be examined with the iodin method from time to time so that ample warning of the approaching exhaustion of the solution may be given to the operators.

DOCTOR TEST DETAILS

I have read your directions for the doctor test in The Oil and Gas Journal, October 16, and believe your readers would be interested in the detailed directions recently distributed by the Atlantic Refining Co. as attached.—A. N. S.

The test shall be carried out in standard cylindrical 4-ounce sample bottles, the inside diameter of which shall be approximately 33 mm. The bottles shall be fitted with clean cork stoppers.

The reagents required are:

(a) Sodium plumbite (doctor solution). A plumbite solution shall be prepared containing 120-140 grams of NaOH per liter and 20-30 grams of PbO per liter.

Considerable experience with this test indicates that the procedure for preparing the plumbite solution as recommended in the Bureau of Mines method 520.3 in Technical Paper 323B results in solutions of widely varying lead content. To obtain accurate results it is advisable to use solutions of the concentration indicated.

This solution is most conveniently prepared by dissolving approximately 125 grams of NaOH in one liter of distilled water, adding 60 grams of PbO and agitating the mixture with air for a period of six to eight hours at a temperature of 150-175° F. After cooling to room temperature, the solution may be brought back to its original volume by addition of distilled water. Undissolved litharge should be allowed to settle out and the clear liquid should be siphoned off into a container protected from the air. Filtration through an asbestos mat may be employed if the solution does not settle clear.

(b) Sulphur. Pure dry flowers of sulphur, ground and screened to 100-200 mesh shall be used and shall be kept in a closed container to protect from dust.

The procedure is as follows:

To five cubic centimeters of the plumbite solution in a standard test bottle add 10 cubic centimeters of the sample to be tested.

Given a standard plumbite solution, the two most important variables are the volume of sample to be tested and the interfacial area between the sample and the plumbite solution. Both of these factors determine the concentration of the dark precipitate which discolors the sulphur film and is used as the criterion of judgment as to whether a sample is doctor sour or not.

Stopper tightly with a clean cork and shake vigorously for 15 seconds. Add a quantity of pure dry sulphur just sufficient to cover the interface between the sample and the plumbite solution, stopper the bottle, shake vigorously for 15 seconds and allow to settle.

It is important to avoid the addition of more sulphur than will just cover the interface otherwise the dark precipitate will be diluted by the excess sulphur and the interpretation of the test thereby affected. With finely ground sulphur, as specified, 20-25 milligrams is the proper quantity. This amount can be accurately estimated with a little practice.

Interpretation of results—If on agitation of the plumbite-treated sample with sulphur, the sulphur film becomes discolored or flecked with brown or black, the test shall be reported positive and the sample considered "sour."

In many samples which have been examined, it has been noticed that if the sample is even slightly sour a colored "lace-like" emulsion tends to form between the sample and the plumbite solution.

When agitation of the plumbite-treated solution with sulphur results in no discoloration of the yellow sulphur film, the test shall be reported negative and the sample considered "sweet."

The appearance of an immediate black precipitate on the addition of the sample to the plumbite solution is indicative of the presence of hydrogen sulphide. If no immediate precipitate is formed but the sample becomes opalescent and much darker in color after shaking with the plumbite solution, the presence of dissolved elemental sulphur and mercaptans is indicated. In the presence of mercaptans and absence of hydrogen sulphide and dissolved elemental sulphur a clear yellow solution of varying intensity usually results.

CAUSES OF DETONATION

Please explain the modern theory on causes of detonation in high compression motors. Also would appreciate a reference to a good modern book on the automobile motor.—C. R. N.

It is known that knocking of an internal combustion engine may be due to both mechanical conditions and chemical conditions. The mechanical, or physical, conditions include compression ratio, running rate, spark setting, valve timing, shape and size of combustion space, cooling temperature, etc. Chemical conditions have to do with the composition of the fuel and the conditions for its combustion including the proportion of air admitted to the combustion chamber. The efforts to explain knocking acknowledge that mechanical conditions are correct or normal.

Several hypotheses have been offered to explain what takes place when a fuel detonates. It is thought that the sudden rise in pressure produced by the extreme flame velocities is the cause of the knock. This hypothesis has been expanded and numerous details have been offered but many investigators have agreed to the general principle. A brief discussion may be of interest.

Air must be mixed with gasoline to produce the desired explosive mixture for the development of the power. Some of the oxygen thus introduced will, under proper conditions, combine with the hydrocarbons to form peroxides and experiments show that larger quantities of these are obtained from a knocking gasoline than from a fuel which has a high antiknock rating. Confirming proof is suggested by the fact that knock is induced when the peroxides are added to a nondetonating gasoline.

The organic peroxides become concentrated as the pressure rises and are ignited when the temperature of decomposition is reached. The detonating effect, or knocking, is the result of the sudden and violent rise in pressure following the extremely high flame velocities. Antiknock substances serve to minimize detonation because they slow down flame propagation in the combustion area through the prevention of the formation of the peroxides.

The formation of nuclear drops is one method for explaining the mechanics of detonation. As the fuel-air mixture is compressed a temperature is produced causing slow oxidation resulting in the formation of unstable peroxides and as compression increases these are absorbed by layers of undecomposed vapors in the immediate vicinity of the drops and finally are condensed with them into the drops. If no nuclear drops are present to absorb the peroxides they decompose, as quickly as formed, to form aldehydes and water. Additional compression causes a further rise in temperature, which with the heat of combustion of the vapors causes the peroxides to detonate. Thus each drop becomes the center of an explosion, the drop is destroyed and the combustion of the mixture is completed. It is the cumulative effect of these successive explosions that causes the peculiar knock in the engine.

The following are reliable books on the automobile motor: Favary, Ethelbert—Motor Vehicle Engineering; McGraw-Hill Book Co., 370 Seventh Avenue, New York. Price $4.50. Dykes—Automobile and Gas Engine Encyclopedia; Goodheart-Wilcox, Chicago. Price $7.50. Schaefer, C. T.—Automobile Mechanics Handbook; Harper Bros., New York. Price $4.

INDUSTRIAL AND OTHER USES FOR WHITE OIL

It would be appreciated if you would give us a list of the various industrial uses for white oil, medicinal oil, together with any special uses for this petroleum product.—P. R.

White oil is a pure mineral lubricating oil, free from taste, color, and odor, which is supplied for a number of technical and industrial purposes. A partial list may be mentioned: Pharmaceutical and cosmetic preparations; in medicine as an internal lubricant; as a sterlizing medium for instruments in hospitals, medical and dental offices; museums and biological laboratories for the preservation of specimens; for the preparation of dietic foods and in salad oils.

For the preservation of eggs in cold storage plants.

In the refrigerator industry. For the lubrication of food handling machinery, such as is used for bread and cake making. In the textile industry, especially machinery for making fine textiles where it is necessary to use a stainless lubricating oil; rayon plants. It is used for lubricating scientific apparatus and delicate mechanisms of various sorts.

ACCOUNTING FOR REFINERIES

I am in need of a book on the subject of accounting for refineries and wish you would suggest a reliable book on this subject.—L. D. W.

The American Petroleum Institute has announced the preparation of a standardized system of accounting for the petroleum industry and the first part of this should soon appear. The first part or section will have to do with general accounting, including the general balance sheet, capital assets, reserve accounts, income account, earned surplus analysis, cost and expense accounts. At a later time it is expected that a section relating to refinery accounting will be published.

Several papers have been presented before the A.P.I. committee on uniform accounting in which the subject of accounting for refineries has been discussed. These have appeared in bulletins of the institute.

Accounting for the Petroleum Industry, by Morland and McKee, published by McGraw-Hill Book Co., New York, contains a section, Part III, which includes several chapters about refinery accounting; these are: Refinery practice, capital assets and depreciation, labor, stores, and expense, cost finding, sales and other earnings, general accounting records and classification of accounts.

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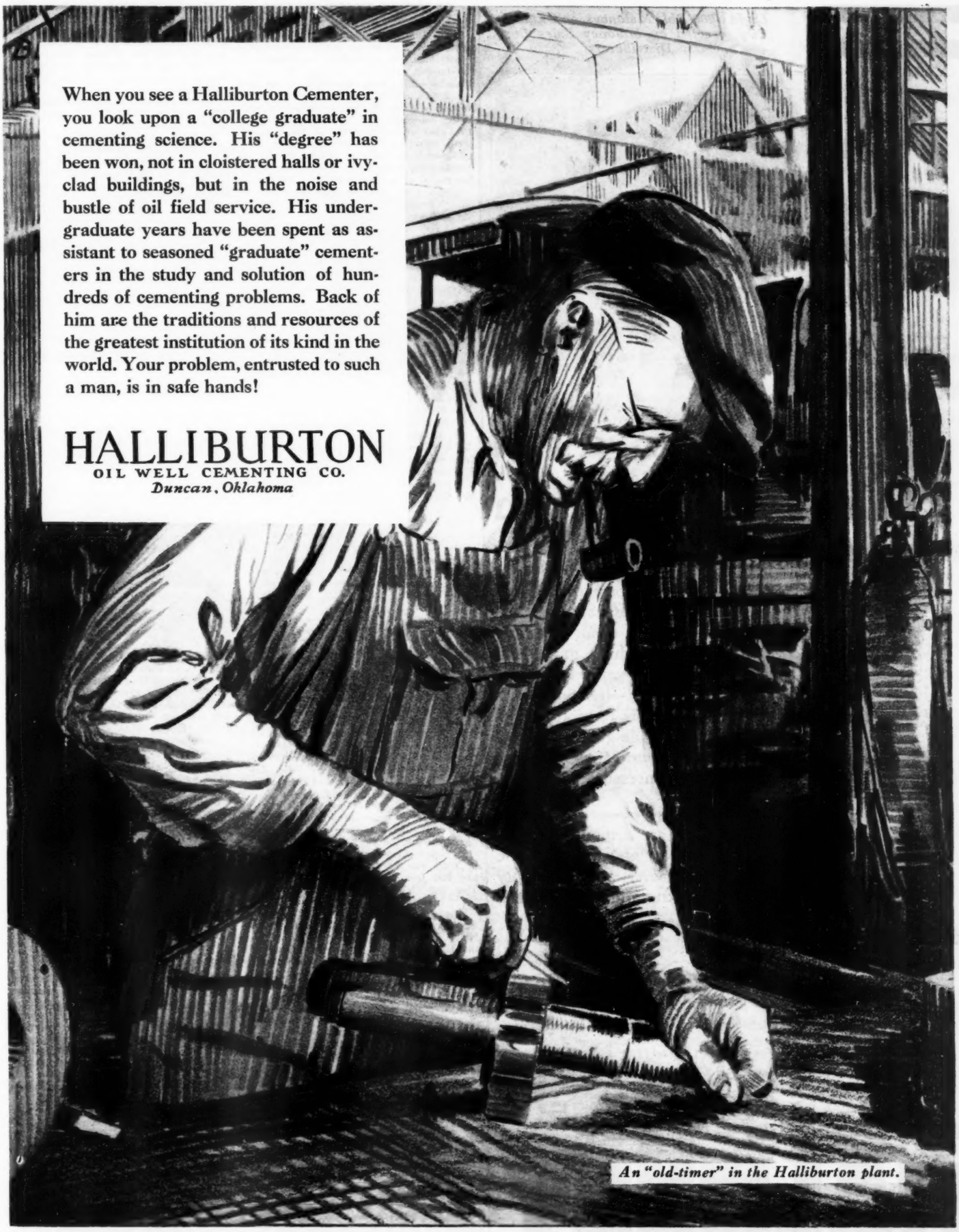

An "old-timer" in the Halliburton plant.

Would you, as a reader of The Oil and Gas Journal, like to receive copies of THE CEMENTER as issued? Each number contains interesting information about cementing and drilling fluids. There is no cost or obligation—simply sign your name below and mail to Halliburton Oil Well Cementing Co., Duncan, Okla.

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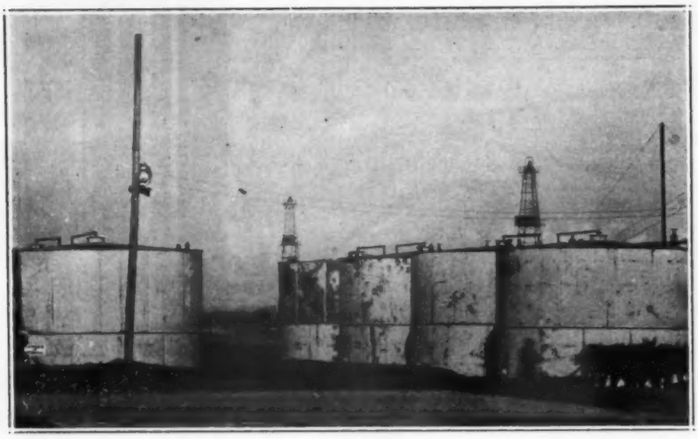

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Distributers at All Principal Petroleum Points

CENTRAL WEST FIELDS

(Continued from Page 74)

ty, which showed an initial production of 80 bbls. It is slightly in advance of production and No. 1 on the farm. Charles Karns and others' No. 1, in the southwest corner of the C. C. Ackman farm, SW, Section 1, same township, was a dry hole at 1,633 feet. The Ohio Oil Co. also drilled a dry hole in No. 48 well, 800 feet from the south line and 250 feet from the east line of the L. A. Buchannan farm, SE, Section 2, same township, at a total depth of 1,900 feet.

Three wells were brought in in Crawford County. In Honey Creek Township, John Phipps and others' No. 8 well, 600 feet from the north line and 260 feet from the east line of the D. A. Funk No. 2 farm, SW, Section 36, pumped but 2 bbls. the first 24 hours from 1,032 feet. The Ohio Oil Co. found a dry hole 720 feet from the south line and 600 feet from the east line of the Jobe Randolph No. 2 farm, SW, Section 14, Oblong Township, at 1,418 feet. Porterville Oil Co. found a duster 600 feet from the south line and 200 feet from the east line of the Coulter heirs farm, NW, Section 35, Prairie Township, at a depth of 1,010 feet.

In East Carbondale, St. Clair County, Joe Weiss and others' test on the Phillips farm was dry from 523-45 feet.

R. E. Moffett and others' No. 7 well, 200 feet from the south line and 660 feet from the west line of the Hattie L. Briscoe farm, NE, Section 32, Parker Township, Clark County, pumped but 1 bbl. from the shallow sand in 24 hours.

MISSOURI

The St. Elco Development Co. drilled a dry hole in the northeast corner of the Ottis Young property, in Survey 405, St. Ferdinand Township, St. Louis County, at a depth of 1,000 feet. This company is also working at two wells on the R. J. Culli property, Survey 27, same township.

KENTUCKY-TENNESSEE

(Continued from Page 74)

when oil is found the wells are shut in until the shutdown movement ends, and there is no telling when that will be. With gas it is different, as they can be made use of as soon as connections are made in the gas lines. George Randolph drilled in his No. 1 on the Herman Fuqua farm, which showed a volume of 300,000 feet. Same party drilled a dry hole in the northeast corner of the George Ray farm, in the Jett sand.

D. J. White and others No. 2 on the Lafe Payne 50 acres, produced an initial of 10 bbls., being the only oil well completed during the week in the county.

Cornell and others struck a dry hole in No. 1 well 600 feet from the north line and 200 feet from the east line of the Tom Sandidge farm.

Daviess County Wells

The only completion of note in the Daviess County area, was S. M. Sirman's No. 7 on the H. K. Atherton farm, in the Red Hill Pool, for an initial of 80 barrels. In the same area, George Engle drilled a dry hole in No. 2 on the Jim Yeiser farm.

Goldberg & Young's No. 16 on the L. Purcell farm, produced an initial of 50 bbls., while James C. Ellis and others No. 2 C. Gregory farm, was dry.

In the Pellville Field of Hancock County, D. T. Bolling's second test in the southeast corner of the J. T. Crow west 60 acres, produced an initial of 55 bbls. Cox, Ewell and others' test. 800 feet from the south line and 100 feet from the east line of the Bolling Sisters farm, which was dry in the Jett sand and drilled deeper, struck a gas volume reported at 5,000,000 feet in the Barlow sand. Chester Oil Co. is drilling No. 2 on the William Bates farm.

EASTERN KENTUCKY

In the Monticello Field of Wayne County, District 3, Smith, Cameron and others No. 4 Geo. E. Bell farm, was dry as was their No. 4 on the Coyle Heirs farm, same district. Bain & Hogue made a location for No. 3 Eli Phipps farm, same area. In District 5, Harman, Frank & Hamlin's No. 5 Odis Catron farm, was a duster.

In Estill County, District 10, Humes & Wallace's No. 2 J. P. Brinegar farm, was dry and No. 3 same farm, pumped 2 bbls. Cox & Gabbard's No. 4 James Evans farm, pumped 10 bbls the first 24 hours.

In Lawrence County, District 1, the Piney Oil & Gas Co. is drilling No. 1 Fred Wellman farm.

In Johnson-Magoffin Counties, District 25, Cumberland Petroleum Co.'s No. 44 L. C. Bailey farm, pumped 20 bbls., initial from the Weir sand, and due to complete No. 45 same farm. This company's No. 1 on the George Helton farm at last report had reached a depth of 2,350 feet and will be made a deep test of. Peoples Pittsburg Trust Co., drilling No. 3 Carter Wheeler farm, District 27, same counties.

No new completions were reported from the LeGrand Pool, in Hart County, which is destined to get a heavy play as fast as drilling tools can be put on the ground.

PRODUCTION COMMITTEE ON FIRE PREVENTION

Appointment of a division of production committee on fire prevention, with R. W. Pack, Sun Oil Co., Beaumont, Tex., as chairman, has been announced by the American Petroleum Institute, the new committee correlating its activities with those of corresponding committees of the divisions of refining and marketing.

The first meeting will be held at 8 p. m., Saturday, November 8, in private dining room No. 3 of the Stevens Hotel at Chicago, just prior to the opening of the Institute's eleventh annual meeting. Members of the committee are: H. C. Fitzpatrick, Prairie Oil & Gas Co., Independence, Kans.; H. J. Wilson, Associated Oil Co., San Francisco, Calif.; B. A. Moeller, General Petroleum Corp. of California, Vernon, Calif.; R. H. Kinsloe, Magnolia Petroleum Co., Dallas, Tex.; R. J. Fleckenstein, Texas Pacific Coal & Oil Co., Fort Worth, Tex.; R. W. Howe, Atlantic Pipe Line Co., Dallas, Tex.; C. L. Swim, Skelly Oil Co., Tulsa: C. C. Scharpenberg, Standard Oil Co. of California, San Francisco, Calif., and G. F. Prussing, Union Oil Co. of California, Los Angeles, Calif. Additional members are to be appointed.

Appointment of the new committee is the latest development of fire prevention work begun by the Institute in May, 1922, when a conference resulted in the organization of an advisory committee on fire prevention and protection of life and property. The group was reorganized in 1925 as the general committee on fire prevention. Upon its recommendation the Institute undertook the compilation of a record of all fires subsequent to December 31, 1924, which involved properties of oil companies. The committee also worked co-operatively with the National Fire Protection and American Railway Associations.

DR. STEPHENSON TO ROLLA

Dr. Eugene A. Stephenson, formerly of Pittsburgh, Pa., where he was associated with Ralph E. Davis as consulting geologist and engineer engaged in petroleum work, has accepted the position of Professor of Petroleum Production at the Missouri School of Mines, beginning this fall. Dr. Stephenson graduated from Adrian College in 1907, and later entered the University of Chicago, where in 1915 he received his doctor's degree, majoring in geology and minoring in chemistry. For three years before receiving his doctor's degree and for one year after, he taught in the geology department of the University of Chicago, and then became chief geologist for the South Penn Oil Company of Pittsburgh for seven years. At the end of that time he became associated with Ralph E. Davis, consulting engineer, engaged in petroleum work.

COLON PRODUCTION

Production of Colon Oil Corporation's subsidiary in Venezuela for the week ended October 17, was 102,075 bbls.

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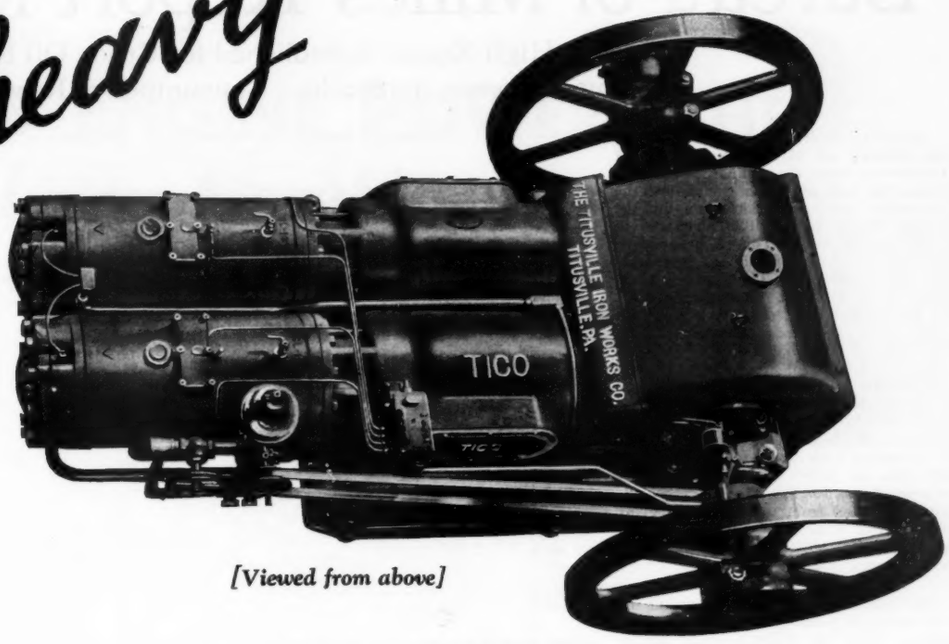

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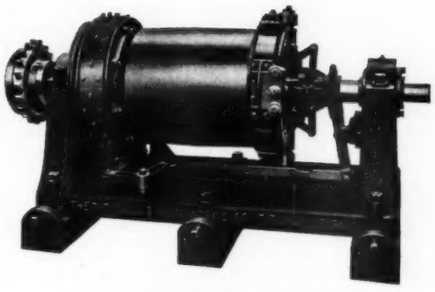

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Bureau of Mines Report for Year 1929

New High Record Established for Crude Oil Production. Big Increase in Stocks. Consumption Recorded Gain

According to final figures compiled by the Bureau of Mines, Department of Commerce, from the annual canvass of producing and pipe line companies, the production of crude petroleum in the United States during 1929 amounted to 1,007,323,000 bbls. This figure constitutes a new high record and represents the first 1,000,000,000-bbl. year. Compared with 1928, it represents a gain of 105,849,000 bbls., or 12 per cent. In addition to the output of crude, 52,271,000 bbls. of natural gasoline and 3,055,000 bbls. of benzol were produced and 108,710,000 bbls. of crude and refined oils imported, making a total new supply of 1,171,359,000 bbls. Stocks of all oils increased 68,156,000 bbls. during the year as compared with an increase of 22,782,000 bbls. in 1928. Exports of all oils amounted to 163,120,000 bbls., which, when deducted from total demand, gives an indicated domestic demand for all oils of 940,083,000 bbls. This represents an increase over 1928 of 9 per cent.

WORLD CRUDE OIL PRODUCTION, 1927-1929
(Figures in thousands of barrels)*

Country—	1929 Quantity	1929 % of total	1928 Quantity	1928 % of total	1927 Quantity	1927 % of total
United States	1,007,323	67.9	901,474	68.0	901,129	71.4
Venezuela	137,472	9.3	105,749	8.0	63,134	5.0
Russia†	‡99,507	6.7	‡84,704	6.4	77,018	6.1
Mexico	44,688	3.0	50,151	3 8	64,121	5.1
Persia	‡42,145	2.8	43,461	3.3	39,688	3.2
Netherland East Indies	38,072	2 6	32,118	2 4	27,459	2 2
Rumania	34,689	2.3	30,773	2 3	26,368	2.1
Colombia	20,385	1.4	19,897	1.5	15,014	1.2
Peru	13,422	.9	12,006	.9	10,127	.8
Argentina	9,391	.6	9,070	.7	8,630	.7
Trinidad	8,716	.6	7,684	.6	5,380	.4
India, British	8,366	.6	8,741	.7	8,032	.6
British Borneo (Sarawak)	5,279	.4	¶5,223	.4	4,943	.4
Poland	4,988	.3	5,492	.4	5,342	.4
Japan (including Taiwan)	2,010	.1	1,944	.1	1,789	.1
Egypt	1,864	.1	1,842	.1	1,267	.1
Ecuador	1,760	.1	1,084	.1	537	
Canada	1,121	.1	624		477	
Sakhalin, Russian	‡1,076	.1	677		440	
Iraq	798		713		338	
Germany	711		630		663	2
France	497		512	.3	504	
Czechoslovakia	93	.1	94		112	
Italy	44		46		47	
Other countries	34		24		23	
Total	1,484,451	100.0	1,324,733	100.0	1,262,582	100.0

*Compiled by L. M. Jones of the Bureau of Mines. †Exclusive of Sakhalin, which is shown separately. ‡Year ended September 30. §Net production; actual production less oil returned to structure. ¶Includes a small output from Brunei.

Crude Petroleum

The production of crude petroleum increased rapidly up to August, the peak month, when the daily average nearly reached the 3,000,000-bbl. mark. A material factor in this gain in output was the incentive supplied by a price increase in May. Production tapered off in the last four months of the year, when consumption was also declining.

Texas, with an output of 296,876,000 bbls. was again the leading producing State, although it was closely pressed by California with a production of 292,534,000 bbls. Oklahoma dropped from second to third, although its output of 255,004,000 bbls. represented a small increase over 1928. These three states accounted for 84 per cent of the total output as compared with 82 per cent in 1928.

The major portion of the new production secured in Texas in 1929 came from West Texas, from extensions and deeper drilling in the Gulf Coast area, from Gray County (Panhandle), and from the Bruner Field of Guadalupe County. The most important factors in the increased output in California were the rapid development of the deep sands at Santa Fe Springs and the unusual success attending drilling at Elwood. Drilling in the Oklahoma City Pool did not really get under way until 1930 but the field produced nearly 9,000,000 bbls. in 1929 as compared with only a few thousand barrels in 1928. New discoveries in and around the Seminole area more than made up for the decline of the older wells.

Total crude stocks east of California, including producers' stocks, increased from 374,874,000 bbls. at the beginning of the year to 387,396,000 bbls. on hand December 31, 1929. Nearly half of this increase of roughly 12,500,000 bbls. occurred in refinery stocks. In California the increase in crude output progressed even faster than in the remainder of the country and stocks of crude, including fuel, were increased by over 36,000,000 bbls.

Imports of Crude Oil

Imports of crude petroleum, which had increased materially during 1928, did not quite hold their own in 1929. The total quantity brought in in 1929 amounted to 78,933,000 bbls. as against 79,767,000 bbls. the previous year. Imports of crude oil from Mexico were lower for the seventh successive year, those from Venezuela were again higher, though the increase over the previous year was much smaller than for several years past. Imports of crude petroleum from Colombia showed a small increase in 1929, and those from other countries remained of little importance. Shipments of California crude oil through the Panama Canal to eastern ports in the United States continued to decline and amounted to only 1,299,000 bbls. as against 2,301,000 bbls. in 1928.

After falling off for two successive years, there was a decided increase in drilling activity in 1929. Oil wells completed increased from 12,526 in 1928 to 15,572 in 1929; gas wells, from 2,727 to 2,870; and dry holes, from 7,078 to 7,914. August was the peak month for drilling, with 2,662 wells completed.

The total value of the crude petroleum produced in 1929, as compiled from a special canvass of purchasing companies, amounted to $1,280,417,000, the highest total recorded since 1926. This represents an average of $1.27 per barrel as compared with an average of $1.17 in 1928. This increase was somewhat unexpected, considering the material increase in production, and resulted primarily from higher prices paid for crude in Texas, exclusive of the Gulf Coast, and in California. The crude produced in these two districts, over half of the total output in 1929, rose 18 cents and 11 cents in average value, respectively, in that year. These increases were mainly responsible for the 10-cent gain in national average. A comparison of the average values, as submitted by the purchasers, with the record of posted prices shows that the price increase of May 20-22 was largely responsible for the gain in values. This increase, which was fairly general throughout the country east of California, more than made up for the price decreases posted late in January. Except for Alaska, where the scarcity of crude attaches an unusually high value to the small quantity produced, only two states, Michigan and New Mexico, had a lower average value in 1929 than in 1928. The average price paid by New York purchasers—$3.90 per barrel—was the highest in the country; that in West Texas—$0.83—the lowest.

A survey of companies engaged in gathering crude oil from wells showed that on December 31, 1929, there were close to 328,200 producing oil wells in the United States. This compares with 327,800 wells producing at the beginning of the year. As given above, there were over 15,000 oil wells completed during the year 1929, and the increase in total wells of only 400 indicates that there was almost a balance between new wells brought in and abandonments. The states which had nearly all the flush production in 1929, Texas, California and Oklahoma, had a net loss in number of wells in 1929, whereas the states of New York, Pennsylvania and West Virginia, with average yields per well per day of less than a barrel, all made a gain in number of wells during the same period. The average yield per well per day in 1928 was 7.6 bbls.; the increase in 1929 to 8.4 bbls. was due primarily to the striking of gushers in the two leading states, Texas and California. The lowest average yields reported were in the Lima district of northwestern Ohio and northeastern Indiana, where an average of only 0.2 bbl. per well per day was produced. The highest average daily yield, 161.3 bbls., was credited to the West Texas fields, but this was considerably below the average of 208.9 bbls. achieved there in 1928.

Refined Products

Runs to stills of crude petroleum in 1929 totaled 987,708,000 bbls., an increase over 1928 of 8 per cent. Of this total 912,191,000 bbls., or 92 per cent, was domestic crude and 75,517,000 bbls., or 8 per cent, was foreign crude oil. Compared with 1928, these data represent a gain in the use of domestic crude of 76,480,000 bbls. but a decline in the use of foreign crude of slightly over 2,000,000 bbls. Daily average runs to stills in January were below December, 1928, but from February 1 to July 1 they increased steadily. A recession in refining activity occurred in July but August, September and October witnessed a steady gain in crude oil processed. A number of causes could be ascribed to account for the establishment of new high records in crude oil processed as late in the season as September and October, the most important of which was the desire on the part of refiners, particularly those situated on the seaboard, to make the most of the price increases for refined products that occurred in July. Furthermore, it is probable that these peak runs to stills in October were but a reflection of the record-breaking crude production in July, August and September; in other words, the excess output was refined instead of stored. The California district reported the largest increase in runs to stills in 1929, with Texas second and Indiana-Illinois third. The major portion of the increase in Texas can be attributed to a comparatively few refineries in the Gulf Coast. On a percentage basis the gain in runs to stills in West Texas of almost 10,000,000 bbls. was more important than the increase in the Texas Gulf Coast area.

The production of motor fuel in the United States during 1929 amounted to 18,454,506,000 gallons, or 439,393,000 bbls., of which 435,078,000 bbls. was produced as "gasoline" at refineries. This represents an increase in motor fuel production over 1928 of 15 per cent. As noted above, the increase in crude runs to stills was 8 per cent, hence the additional 7 per cent gain resulted from a further gain in percentage recovery which, in 1929, was 44 per cent as compared with 41.3 per cent in 1928. A portion of this gain in percentage yield resulted from a material increase in the quantity of natural gasoline blended with the natural gasoline factor eliminated, the gain in recovery was close to 2 per cent, or the equivalent of from 37.4 to 39.3 per cent of the crude oil run. California reported the largest increase in gasoline recovery in 1929; the percentage in that State rose to 38 per cent from 32 per cent in 1928. A portion of the increased yield of gasoline in 1929 was due to a gain in cracking activity. The total production of cracked gasoline in 1929 amounted to 143,727,000 bbls., a gain of 17 per cent over 1928.

Gasoline Imports

A material factor in the 1929 gasoline supply was an increase in imports of from 4,198,000 bbls. in 1928 to 8,834,000 bbls. in 1929. From a purely domestic standpoint the rapid growth in shipments of California gasoline through the Panama Canal to the Atlantic Seaboard was also very important.

The indicated domestic demand for motor fuel in 1929 amounted to 375,999,000 bbls., an increase of 43,966,000 bbls., or 13 per cent, over 1928. Exports increased from 53,412,000 bbls. in 1928 to 62,059,000 bbls., in 1929, a gain of 16 per cent. The trend of motor fuel stocks in 1929 was somewhat different from 1928. The peak stocks of March 31, 1929, were considerably higher than those of the corresponding period in 1928 and, though the heavy summer demand reduced these stocks to as low as 24 days' supply on August 31, the continued record-breaking output carried over into the fall months caused a rapid accumulation of stocks during the last quarter of the year. Thus, the total on hand on December 31, 1929—43,261,000 bbls.—was over 10,000,000 bbls. above the quantity held on the first day of the year.

The percentage yield of kerosene continued to decline and fell from 6.5 per cent in 1928 to 5.7 per cent in 1929. Exports declined slightly over 2,000,000 bbls. but the indicated domestic demand was practically the same as in 1928.

The production of gas oil and fuel oil in 1929 amounted to 448,949,000 bbls., a recovery from the crude processed of 45.5 per cent, as compared with 46.8 per cent recovered in 1928. The percentage yield of both kerosene and fuel oil has declined steadily in recent years; the net decrease was comparable with the increase in recovery of gasoline. Imports of fuel oil showed a rapid increase, beginning in March, and the total for the year of 20,545,000 bbls., was 183 per cent higher than the 1928 figure. Stocks of gas oil and fuel oil east of California declined 501,000 bbls. in 1929 but stocks in California, which include heavy crude, rose from 99,218,000 bbls. on January 1 to 112,406,000 bbls. on December 31.

The production of lubricants recorded a small decline in 1929 but, because of the increased runs to stills, the percentage yield dropped materially—from 3.8 per cent in 1928 to 3.5 per cent in 1929. Exports of lubricants were lower but the indicated domestic demand was higher.

The statistical record for paraffin wax in 1929 was practically the reverse of 1928. In the latter year production, exports and indicated domestic demand increased materially over 1927 and stocks were reduced, but in 1929 production remained virtually the same, exports and indicated domestic demand were 19 per cent and 9 per cent lower, respectively,

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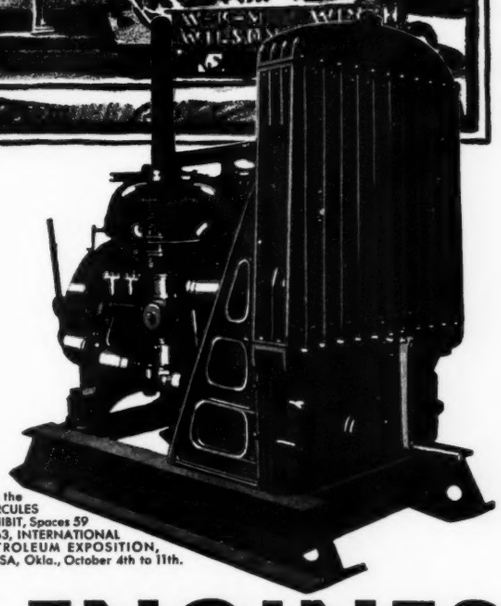

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HERCULES ENGINES

and stocks increased nearly 80,000,000 pounds, or 70 per cent. In the face of this apparent weak market for wax producers in 1929, the increase in imports to a new high record was somewhat surprising.

Natural Gasoline

According to monthly reports, the production of natural gasoline in 1929 amounted to 2,195,400,000 gallons, or 52,271,000 bbls., a gain over the preliminary total for 1928 of 24 per cent. The final 1929 figure, obtained through an annual canvass, amounted to 2,233,688,000 gallons. Production increased steadily in the spring of the year, showed little change during the summer months, rose rapidly in September and October but fell back in November and December. The production of October, 206,300,000 gallons, established a record, which up to August, 1930, had not been approached. The increased output of September and October resulted primarily from increased activity in the Panhandle and in the Santa Fe Springs Field.

During the first five months of the year, stocks of natural gasoline held by natural gasoline plant operators increased steadily and by May 31 had reached a new high level of 58,400,000 gallons. However, the increased demand for motor fuel in the summer months resulted in material drafts on stocks so that, despite additions to storage in November and December, the total at the end of the year, 25,400,000 gallons, was slightly under the amount on hand January 1.

The use of natural gasoline in blends at the plants showed a slight gain over 1928. A total of 27,700,000 gallons of natural gasoline and 32,300,000 gallons of naphtha were utilized in blends in 1929.

World Production in 1929

The world's production of crude petroleum during 1929 reached a total of 1,484,451,000 bbls., an increase over 1928 of 159,718,000 bbls., or 12.1 per cent. Production outside of the United States reached a total of 477,128,000 bbls., or 53,869,000 bbls. more than in 1928. Domestic production increased 105,849,000 bbls. The rate of increase in domestic production did not quite equal that of the foreign oil-producing countries, consequently, the ratio of the United States production to the world dropped from 68 per cent in 1928 to 67.9 per cent in 1929. Venezuela and Russia maintained their respective positions as the second and third largest producing countries. Actual crude production in Persia, estimated at approximately 6,000,000 metric tons, probably was slightly larger than the Mexican production, but the Persian figures represent net production, being the actual production less the quantity of oil returned to the sands in underground storage operations. Through increased production, the Netherland East Indies, Rumania, Colombia, Peru and Argentina retained their respective ranks, while Trinidad passed British India to become the leading British producing country. Among the lesser producers, Canada and Russian Sakhalin reached, for the first time, an annual production of more than 1,000,000 bbls.

The three principal shipping fields in Venezuela — Lagunillas, La Rosa-Ambrosia and Mene Grande—showed an increase of approximately 32,000,000 bbls. over 1928, accounting for virtually all of the increased production of the country. Production in the U.S.S.R. (Russia) increased by approximately 15,000,000 bbls. Production of heavy crude in Mexico declined throughout the year, while light crude oil production increased primarily as the result of new developments at Tonala, Isthmus of Tehuantepec.

The accompanying table shows output of various oil-producing countries as reported to the Bureau of Mines. These figures are based upon data obtained through the co-operation of consular officers in various foreign countries, official publications and certain data furnished by producing companies. Because of the delay in obtaining comparable data for all countries, some minor changes may be made in the figures for certain of the smaller countries.

The daily average supply of all oils—production of crude petroleum, natural gasoline and benzol plus imports of 11 oils — was consistently higher in 1929 than in 1928. The daily average for all the months of 1929 exceeded 3,000,000 bbls. but in 1928 only September approached that mark. The daily average indicated domestic demand for all oils declined materially below domestic production, and in only one month, November, was the excess less than 100,000 bbls.

SUPPLY AND DEMAND OF ALL OILS IN 1929, BY MONTHS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
NEW SUPPLY:														
Domestic production:														
Crude petroleum	82,054	75,456	82,463	80,412	84,499	83,407	91,309	92,165	87,453	88,430	78,758	80,917	1,007,323	901,474
Daily average	2,647	2,695	2,660	2,680	2,726	2,780	2,945	2,973	2,915	2,853	2,625	2,610	2,760	2,463
Natural gasoline	3,983	3,736	4,324	4,264	4,343	4,250	4,417	4,507	4,574	4,912	4,504	4,457	52,271	42,326
Benzol	250	233	264	255	267	257	264	264	253	265	245	238	3,055	2,809
Total production	86,287	79,425	87,051	84,931	89,109	87,914	95,990	96,936	92,280	93,607	83,507	85,612	1,062,649	946,609
Daily average	2,783	2,837	2,808	2,831	2,874	2,930	3,096	3,127	3,076	3,020	2,784	2,762	2,911	2,586
Imports:*														
Crude petroleum	8,075	7,016	6,790	7,828	7,552	6,591	6,122	5,800	6,953	5,766	4,554	5,886	78,933	79,767
Refined products	884	908	1,489	2,634	2,732	2,426	3,176	3,430	2,725	3,643	3,327	2,403	29,777	11,790
Total new supply, all oils	95,246	87,349	95,330	95,393	99,393	96,931	105,288	106,166	101,958	103,016	91,388	93,901	1,171,359	1,038,166
Daily average	3,072	3,120	3,075	3,180	3,206	3,231	3,396	3,425	3,399	3,323	3,046	3,029	3,209	2,837
Increase in stocks, all oils	10,682	10,223	11,085	5,963	4,605	6,248	4,985	4,872	5,498	4,579	13,042	3,458	68,156	22,782
DEMAND:														
Total demand	84,564	77,126	84,245	89,430	95,788	90,683	100,303	101,294	96,460	98,437	94,430	90,443	1,103,203	1,015,384
Daily average	2,728	2,755	2,718	2,981	3,090	3,023	3,236	3,268	3,215	3,175	3,148	2,918	3,022	2,774
Exports:*														
Crude petroleum	1,972	1,678	1,600	1,726	1,932	2,615	3,117	2,236	1,988	2,869	2,579	2,089	26,401	18,966
Refined products	11,760	9,507	10,873	10,364	11,080	12,483	12,441	12,771	8,570	13,984	10,565	12,321	136,719	135,483
Domestic demand	70,832	65,941	71,772	77,340	82,776	75,585	84,745	86,287	85,902	81,584	81,286	76,033	940,083	860,935
Daily average	2,285	2,355	2,315	2,578	2,670	2,520	2,734	2,783	2,863	2,632	2,710	2,453	2,576	2,352
Excess of daily average domestic production over domestic demand	498	482	493	253	204	410	362	344	213	388	74	309	335	234
STOCKS (end of month):														
Crude petroleum:‡														
East of California	378,424	382,861	386,567	387,259	386,310	385,863	389,713	392,684	392,798	390,825	386,383	387,396	387,396	374,874
California§	119,101	123,059	126,422	128,902	132,670	137,241	140,270	146,298	150,759	154,361	153,454	153,455	153,455	116,973
Total crude	497,525	505,920	512,989	516,161	518,980	523,104	529,983	538,982	543,557	545,186	539,837	540,851	540,851	491,847
Natural gasoline at plants	741	821	995	1,166	1,390	1,356	1,156	893	661	490	514	604	604	667
Refined products	133,426	135,174	139,016	141,636	142,198	144,356	142,662	138,798	139,953	143,074	145,357	147,711	147,711	128,556
Grand total stocks, all oils	631,692	641,915	653,000	658,963	662,568	668,816	673,801	678,673	684,171	688,750	685,708	689,166	689,166	621,010
Days' supply¶	232	233	240	221	214	221	208	208	213	217	218	236	228	224
Bunker oil (included above in domestic demand)	3,915	4,252	4,183	4,179	4,704	4,544	4,593	4,734	4,424	4,540	4,110	4,106	52,278	51,226

*From Bureau of Foreign and Domestic Commerce. Exports include shipments to Alaska, Hawaii and Porto Rico and, in 1929, include benzol. †Decrease. ‡Includes producers' stocks. §Includes fuel oil. ¶Grand total stocks all oils divided by daily average total demand.

CRUDE PETROLEUM PRODUCED IN THE UNITED STATES IN 1929, BY STATES

(Thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Arkansas	2,364	2,114	2,331	2,231	2,205	2,033	2,078	2,048	1,946	1,930	1,794	1,853	24,917	32,096
California*	23,453	22,371	24,393	23,367	24,122	24,692	26,814	27,250	26,124	26,904	21,334	21,710	292,534	231,811
Santa Fe Springs	4,760	5,300	5,275	4,750	5,630	7,124	8,134	8,727	8,427	8,319	4,838	5,193	76,477	16,094
Rest of State	18,693	17,071	19,118	18,617	18,492	17,568	18,680	18,523	17,697	18,585	16,496	16,517	216,057	215,717
Colorado	217	188	208	191	224	219	220	196	189	176	157	173	2,358	2,774
Illinois	508	455	603	457	552	517	561	572	532	566	506	490	6,319	6,462
Indiana	87	85	83	82	84	78	77	80	76	83	83	83	981	1,052
Southwestern	83	81	77	76	78	71	72	75	71	78	78	78	918	963
Northeastern	4	4	6	6	6	7	5	5	5	5	5	5	63	89
Kansas	2,939	2,717	3,093	3,385	3,812	3,795	4,323	4,194	3,963	3,681	3,427	3,484	42,813	38,596
Kentucky	585	511	560	584	636	547	710	676	722	810	724	710	7,775	7,359
Louisiana	1,808	1,537	1,691	1,660	1,642	1,629	1,699	1,672	1,777	1,896	1,752	1,791	20,554	21,847
Gulf Coast	752	564	609	609	576	584	599	596	635	706	626	598	7,454	7,053
Rest of State	1,056	973	1,082	1,051	1,066	1,045	1,100	1,076	1,142	1,190	1,126	1,193	13,100	14,794
Michigan	158	129	144	162	236	483	699	627	499	522	460	409	4,528	594
Montana	312	264	340	340	362	351	360	357	340	339	314	301	3,980	4,015
New Mexico	76	67	92	79	96	87	152	164	235	260	257	265	1,830	943
New York	262	240	267	277	295	284	301	285	282	288	281	315	3,377	2,603
Ohio	535	483	564	560	584	576	648	578	542	597	533	543	6,743	7,015
Central and eastern	431	388	442	441	456	431	489	430	422	468	423	438	5,259	5,434
Northwestern	104	95	122	119	128	145	159	148	120	129	110	105	1,484	1,581
Oklahoma	22,856	20,235	21,213	20,689	21,803	20,802	22,874	22,805	21,505	20,739	19,249	20,234	255,004	249,857
Oklahoma City	159	155	106	102	88	151	662	1,165	751	1,422	1,680	2,269	8,710	101
Seminole	12,852	11,653	11,470	11,125	12,064	11,697	12,480	12,084	11,819	10,453	9,069	9,067	135,833	126,963
Rest of State	9,845	8,427	9,637	9,462	9,651	8,954	9,732	9,556	8,935	8,864	8,500	8,898	110,461	122,793
Pennsylvania	851	805	913	943	1,020	953	1,037	1,043	972	1,120	1,053	1,110	11,820	9,956
Tennessee	2	2	1	3	2	.....	2	2	1	2	1	.....	19	46
Texas	23,041	21,422	23,932	23,410	24,752	24,293	26,578	27,359	25,613	26,323	24,793	25,366	296,876	257,320
Gulf Coast	3,632	3,361	3,827	4,184	4,128	3,871	4,053	4,300	4,148	4,705	4,675	4,768	49,652	39,636
West Texas	11,173	10,548	11,518	10,559	11,362	10,868	12,041	11,635	11,014	11,264	10,703	10,643	133,328	123,540
Rest of State	8,236	7,513	8,587	8,667	9,262	9,554	10,484	11,418	10,451	10,354	9,415	9,955	113,896	94,144
West Virginia	458	402	466	465	492	452	482	477	453	511	454	461	5,574	5,661
Wyoming	1,552	1,428	1,569	1,526	1,579	1,614	1,693	1,785	1,681	1,682	1,586	1,619	19,314	21,461
Other†	...	.....	.....	1	1	1	1	1	1	1	.....	.....	7	6
Total United States	82,054	75,456	82,463	80,412	84,499	83,407	91,309	92,165	87,453	88,430	78,758	80,917	1,007,323	901,474

*Annual and semiannual figures from Division of Mines, Department of Natural Resources, California. Monthly figures prorated on basis of monthly reports by the American Petroleum Institute. †Alaska and Utah.

WELLS DRILLED FOR OIL AND GAS IN THE UNITED STATES IN 1929, BY MONTHS*

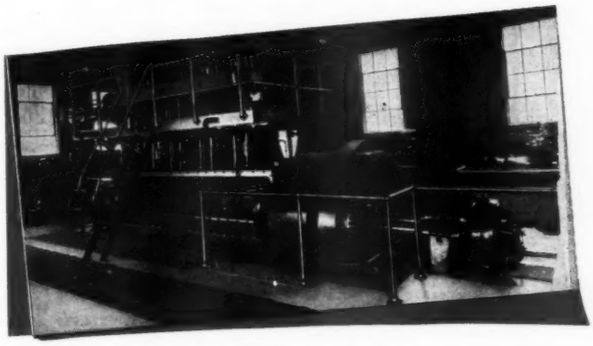
	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Oil	1,111	1,090	1,081	1,216	1,200	1,318	1,426	1,669	1,438	1,556	1,407	1,060	15,572	12,526
Gas	191	186	199	230	231	218	263	252	237	258	300	305	2,870	2,727
Dry	557	557	598	717	665	623	722	741	680	701	743	610	7,914	7,078
Total	1,859	1,833	1,878	2,163	2,096	2,159	2,411	2,662	2,355	2,515	2,450	1,975	26,356	22,331

*For states east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

(Continued on Next Page)

Seven 180-hp. Type "XG" Gas-Engine-Driven Compressors in a Natural Gasoline Plant.

Type 20 Portable Compressor Operating Rock Drills on Trench Work.



5-Cylinder, 585-B.hp. Type "PR" Oil Engine Direct Connected to a Generator.

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More than 1,000 types and sizes of stationary units, arranged for every commercial type of drive, and suitable for any desired pressure condition. Nine sizes of portable units that answer every requirement.

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Straight line and duplex types to meet all conditions.

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4-cycle, solid-fuel injection types up to 6 cylinders and 1,600 horsepower.

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Barometric, jet, and surface types for every condensing service.

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For flowing water wells.

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New automatic control for flowing oil wells by air or gas lift.

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GASOLINE STATISTICS IN 1929, BY MONTHS

(Thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
TOTAL PRODUCTION:														
East Coast	4,712	4,291	4,351	4,505	4,797	4,735	4,553	5,001	4,944	5,199	5,284	5,479	57,851	53,694
Appalachian	1,380	1,178	1,335	1,346	1,418	1,387	1,377	1,294	1,301	1,405	1,346	1,294	16,061	15,894
Indiana, Illinois, Kentucky, Michigan, etc.	4,983	4,594	4,953	5,090	5,464	5,518	5,857	6,097	5,649	5,853	5,471	5,573	65,102	55,716
Oklahoma, Kansas and Missouri	4,915	4,445	5,026	4,981	5,229	5,266	5,554	5,549	5,296	5,435	5,312	5,227	62,235	60,943
Texas	7,409	7,208	7,341	7,458	7,903	7,381	7,773	7,875	8,066	8,904	8,280	7,991	93,589	80,863
Louisiana and Arkansas	2,450	2,270	2,621	2,508	2,697	2,577	2,523	2,630	2,544	2,814	2,650	2,809	31,093	26,662
Rocky Mountain	1,379	1,215	1,424	1,436	1,477	1,406	1,399	1,447	1,405	1,365	1,228	1,250	16,431	16,497
California	7,072	6,111	7,575	7,327	7,305	7,336	8,779	8,697	8,037	8,908	7,789	7,780	92,716	66,676
Total	34,300	31,312	34,626	34,651	36,290	35,606	37,815	38,590	37,242	39,883	37,360	37,403	435,078	376,945
Texas Gulf Coast	5,743	5,641	5,624	5,607	5,888	5,402	5,872	5,962	6,158	6,829	6,257	6,020	71,003	62,526
Louisiana Gulf Coast	1,845	1,747	1,962	1,893	1,950	1,872	1,800	1,903	1,818	2,023	1,880	2,125	22,818	20,199
STOCKS END OF MONTH:														
East Coast	6,364	7,209	7,541	7,525	7,218	6,327	4,861	4,382	4,112	4,512	5,055	6,063	6,063	5,537
Appalachian	1,605	1,870	2,007	1,850	1,698	1,522	1,300	1,056	1,066	995	1,153	1,383	1,383	1,229
Indiana, Illinois, Kentucky, Michigan, etc.	6,793	8,124	8,496	7,862	7,118	6,586	5,665	4,780	4,375	4,333	4,488	5,634	5,634	5,099
Oklahoma, Kansas and Missouri	4,617	5,502	5,849	5,622	5,382	5,205	4,336	3,257	2,937	2,782	3,249	4,123	4,123	3,691
Texas	6,094	7,011	7,308	6,933	6,565	5,638	4,995	3,864	4,087	4,880	5,771	6,648	6,648	4,863
Louisiana and Arkansas	2,772	3,061	3,119	2,746	2,368	2,319	2,022	1,761	1,684	1,598	1,664	2,145	2,145	2,158
Rocky Mountain	2,056	2,500	2,676	2,625	2,460	2,494	2,318	1,812	1,843	1,717	1,917	2,334	2,334	1,568
California	10,059	10,186	11,349	12,025	11,739	12,086	12,277	12,860	13,052	14,279	14,683	14,915	14,915	8,921
Total	40,360	45,463	48,345	47,188	44,548	42,177	37,774	33,772	33,156	35,096	37,980	43,245	43,245	33,066
Texas Gulf Coast	5,280	6,051	6,322	5,915	5,576	4,532	2,906	2,907	3,120	3,982	4,589	5,313	5,313	4,063
Louisiana Gulf Coast	2,524	2,761	2,848	2,489	2,061	1,999	1,739	1,447	1,397	1,295	1,411	1,838	1,838	1,979
PRODUCTION BY CRACKING:														
East Coast	1,904	1,718	1,664	1,811	2,011	2,060	2,190	2,320	2,363	2,508	2,539	2,702	25,790	21,790
Appalachian	417	386	424	412	459	455	503	483	466	455	466	464	5,390	4,579
Indiana, Illinois, Kentucky, Michigan, etc.	2,078	1,965	2,037	2,097	2,325	2,364	2,462	2,539	2,401	2,424	2,299	2,357	27,348	23,279
Oklahoma, Kansas and Missouri	1,649	1,384	1,658	1,660	1,761	1,820	1,910	1,822	1,815	1,835	1,795	1,844	20,953	19,758
Texas	1,750	2,513	2,484	2,491	2,859	2,943	2,846	3,037	3,156	3,442	3,381	3,579	35,481	30,849
Louisiana and Arkansas	737	656	643	677	773	845	926	989	924	981	983	912	10,046	8,141
Rocky Mountain	585	528	613	649	641	621	583	648	629	571	537	507	7,112	6,780
California	855	769	877	847	894	888	881	982	1,049	1,136	1,163	1,266	11,607	7,378
Total	10,975	9,919	10,400	10,644	11,723	11,996	12,301	12,820	12,803	13,352	13,163	13,631	143,727	122,554
Per cent of total	32.0	31.7	30.0	30.7	32.3	33.7	32.5	33.2	34.4	33.5	35.2	36.4	33.0	32.5
Texas Gulf Coast	2,440	2,267	2,221	2,216	2,569	2,589	2,549	2,719	2,854	3,017	2,939	3,068	31,448	33,587
Louisiana Gulf Coast	528	493	466	498	486	575	658	692	612	648	647	610	6,913	

COMPARATIVE ANALYSES OF THE MAJOR REFINED PRODUCTS, 1929

(Thousands of barrels of 42 U. S. gallons, except for wax)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
MOTOR FUEL:														
Production	34,655	31,638	34,987	35,016	36,671	35,975	38,198	38,968	37,605	40,246	37,700	37,734	439,393	380,990
Daily average	1,118	1,130	1,129	1,167	1,183	1,199	1,232	1,257	1,254	1,298	1,257	1,217	1,204	1,041
Imports	465	406	327	822	729	732	934	792	901	1,026	984	716	8,834	4,198
Exports†	4,690	3,839	4,896	4,640	5,363	5,932	6,152	5,784	4,440	6,099	4,219	6,005	62,059	53,412
Stocks‡	40,380	45,488	48,364	47,212	44,572	42,203	37,800	33,795	33,181	35,116	37,997	43,261	43,261	33,092
Days' supply§	45	47	46	38	34	32	27	24	25	28	32	40	36	31
Domestic demand	23,142	23,097	27,542	32,350	34,677	33,144	37,383	37,981	34,680	33,238	31,584	27,181	357,999	332,033
Daily average	747	825	888	1,078	1,119	1,105	1,206	1,225	1,156	1,072	1,053	877	1,030	907
KEROSENE:														
Production	4,599	4,388	4,437	4,354	4,756	4,790	4,374	4,908	4,600	5,162	4,776	4,796	55,940	59,353
Daily average	148	157	143	145	153	160	141	158	153	167	159	155	153	162
Imports	38	20	5	21	6	15	15	24	...	10	54	20	208	202
Exports	1,918	1,590	1,944	1,653	1,462	1,755	1,288	2,055	1,105	2,252	1,319	1,681	20,022	22,034
Stocks	8,755	8,050	7,758	7,417	7,593	8,193	8,551	8,394	8,569	8,515	8,902	9,095	9,095	9,001
Domestic demand	2,965	3,523	2,790	3,063	3,124	2,450	2,743	3,034	3,320	2,974	3,104	2,942	36,032	36,235
GAS OIL AND FUEL OIL:														
Production	36,958	34,541	37,625	37,612	38,649	37,416	37,880	39,189	37,546	39,048	36,134	36,351	448,949	427,237
Daily average	1,192	1,234	1,214	1,254	1,247	1,247	1,222	1,264	1,252	1,260	1,204	1,173	1,230	1,167
Imports	369	466	1,146	1,778	1,983	1,660	2,206	2,589	1,811	2,589	2,297	1,651	20,545	7,268
Exports	3,699	2,796	2,600	2,892	3,142	3,410	3,531	3,579	1,953	4,057	4,098	3,394	39,151	44,427
Stocks‖	32,522	30,118	30,195	33,404	35,636	37,451	40,075	39,316	40,646	‖38,717	37,753	34,425	34,425	34,926
Stocks**	131,513	130,001	131,450	134,532	137,855	141,323	145,762	147,761	150,778	150,402	149,202	146,831	146,831	133,845
LUBRICANTS:														††134,144
Production	2,945	2,503	2,943	2,899	3,005	2,928	2,936	3,143	2,852	2,885	2,555	2,765	34,359	34,658
Daily average	95	89	95	97	97	98	95	101	95	93	85	89	94	95
Imports	1	4	2	3	4	6	4	5	3	2	3	2	39	13
Exports	1,117	871	975	785	840	989	1,088	926	691	1,076	603	899	10,860	11,023
Stocks	8,649	8,534	8,853	8,527	8,370	7,869	7,524	7,478	7,589	8,021	8,117	8,269	8,269	8,340
Domestic demand	1,520	1,751	1,651	2,443	2,326	2,446	2,197	2,268	2,053	1,379	1,859	1,716	23,609	23,168
WAX (thousands of pounds):														
Production	58,885	50,027	56,372	57,976	53,783	52,714	46,171	53,377	44,513	56,377	50,775	49,104	630,074	630,144
Daily average	1,900	1,787	1,818	1,933	1,735	1,757	1,489	1,722	1,484	1,819	1,693	1,584	1,726	1,722
Imports	2,982	3,120	2,575	2,680	2,748	3,070	4,606	5,433	2,896	4,281	2,609	3,860	40,860	24,741
Exports	29,005	25,359	21,868	22,663	18,663	24,986	24,512	28,114	31,990	39,092	26,674	26,398	319,324	392,705
Stocks	125,986	143,057	161,966	174,208	183,308	193,164	194,896	194,649	187,319	190,727	187,247	189,592	189,592	110,344
														††112,554
Domestic demand	19,430	10,717	18,170	25,751	28,768	20,942	24,533	30,943	22,749	18,158	30,190	24,221	274,572	302,474

†Includes benzol. ‡Includes motor fuel blends held at natural gasoline plants §Stocks divided by daily average domestic demand plus exports. ¶East of California. ‖Approximately 2,500,000 bbls. transferred from gas oil and fuel oil to unfinished oils. **Total gas oil and fuel oil stocks plus heavy crude in California. ††Stocks to compare with 1929.

VALUE OF CRUDE PETROLEUM AT WELLS, 1929 AND 1928, AND NUMBER OF PRODUCING OIL WELLS IN THE UNITED STATES DECEMBER 31, 1929, AND 1928

	Value at wells				Producing oil wells in the U. S., Dec. 31, 1929, and 1928			
	1929		1928		1929		1928	
	Total	Average per barrel	Total	Average per barrel	Number of wells	Av'age per well per day* (bbls.)	Number of wells	Av'age per well per day* (bbls.)
Alaska	†.....	....	†.....	....	†.....	....	†.....	....
Arkansas	$21,890,000	$0 88	$27,450,000	$0.86	3,900	16.2	4,520	19.3
California‡	321,367,000	1 10	230,000,000	.99	¶10,520	75.5	¶10,710	57 6
Colorado	2,380,000	1.01	2,750,000	.99	220	30.0	210	39.9
Illinois	10,430,000	1.65	9,980,000	1.54	16,000	1.1	16,340	1.1
Indiana:								
Southwestern	1,520,000	1.66	1,470,000	1.53	1,130	2 2	1,140	2.3
Northeastern	90,000	1.43	110,000	1.24	820	.2	900	.3
Total Indiana	1,610,000	1.64	1,580,000	1.50	1,950	1.3	2,040	1.4
Kansas	62,510,000	1.46	52,500,000	1.36	20,080	5.9	19,800	5.4
Kentucky	13,220,000	1.70	11,850,000	1.61	14,650	1.5	13,740	1.5
Louisiana:								
Gulf Coast	9,150,000	1.23	8,150,000	1.16	360	60.1	320	67.6
Rest of State	16,550,000	1.26	17,700,000	1.20	3,420	10.4	3,500	10 8
Total Louisiana	25,700,000	1.25	25,850,000	1.18	3,780	14.8	3,820	14 8
Michigan	6,140,000	1.36	920,000	1.55	500	27.6	400	4 6
Montana	7,260,000	1.82	6,400,000	1.59	1,290	9.1	1,100	10.5
New Mexico	2,170,000	1 19	1,280,000	1.36	270	18.9	260	10.1
New York	13,170,000	3.90	8,750,000	3.36	16,800	.6	16,500	.4
Ohio:								
Central and Eastern	13,200,000	2.51	11,950,000	2.20	20,720	.7	20,950	.7
Northwestern	2,570,000	1.73	2,520,000	1.59	16,490	.2	16,950	.3
Total Ohio	15,770,000	2.34	14,470,000	2.06	37,210	.5	37,900	.5
Oklahoma	364,650,000	1.43	347,600,000	1.39	61,180	11.3	62,900	11.0
Pennsylvania	44,800,000	3.79	32,550,000	3.27	80,320	.4	78,600	.3
Tennessee	30,000	1.58	70,000	1.52	†.....	...	†.....	...
Texas:								
Gulf Coast	59,930,000	1.21	47,120,000	1.19	2,910	47.2	2,850	39.9
West Texas	110,780,000	.83	80,520,000	.65	2,490	161 3	2,040	208 9
Rest of State	151,810,000	1.33	108,660,000	1.15	30,880	10.1	30,860	8.7
Total Texas	322,520,000	1.09	236,300,000	.92	36,280	22.6	35,750	20.8
Utah	†.....	....	†.....	....	†.....	....	†.....	...
West Virginia	20,070,000	3.60	17,150,000	3.03	19,650	.8	19,600	.8
Wyoming	24,700,000	1.28	27,400,000	1.28	3,530	15.0	3,520	16.6
Other	¶30,000	4.29	¶30,000	5.00	‖70	....	‖90	...
	1,280,417,000	1.27	1,054,880,000	1.17	328,200	8.4	327,800	7.6

*Based on average for year. †Included in "other." ‡Division of Mines, Department of Natural Resources, California. §From American Petroleum Institute. ‖Alaska and Utah ¶Alaska, Tennessee and Utah.

(Continued on Next Page)

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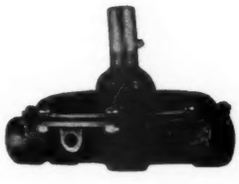

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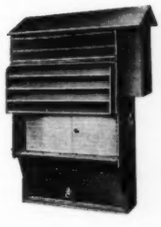

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PRODUCTION AND STOCKS AT REFINERIES IN THE UNITED STATES, 1929

Thousands of barrels of 42 U. S. gallons, except wax, coke and asphalt)

	Runs to stills													
	Domestic crude	Foreign crude	Unfinished rerun (net)	Natural gasoline	Gasoline	Kerosene	Gas oil and fuel oil	Lubricants	Wax (thousands of pounds)	Coke (tons)	Asphalt (tons)	Other finished products	Unfinished oil produced (net)	Shortage
East Coast	106,187	66,247	13,610	2,473	57,851	8,091	91,011	10,874	260,156	181,600	1,586,200	1,463	1,864	6,818
Appalachian	33,802	.....	1,782	642	16,061	3,671	7,165	5,243	96,117	51,500	14,500	259	1,036	2,106
Indiana, Illinois, Kentucky, etc.	110,349	.....	8,911	2,636	65,102	5,334	36,296	3,901	59,482	439,000	534,100	2,155	2,158	1,637
Oklahoma, Kansas and Missouri	115,449	.....	4,896	4,248	62,235	10,052	38,439	2,678	40,618	362,900	23,400	709	2,671	5,513
Texas	208,820	2,873	9,364	9,749	93,589	13,336	92,448	7,727	67,165	440,700	219,900	157	9,171	10,778
Louisiana and Arkansas	69,631	6,397	2,644	6,731	31,093	5,501	32,114	968	65,266	144,800	407,500	2,525	7,105	2,351
Rocky Mountain	25,443	.....	7,165	1,492	16,431	1,530	6,950	580	41,270	124,900	10,300	264	6,715	629
California	243,110	.....	5,618	*18,486	92,716	8,425	144,526	2,388	.....	75,200	673,300	2,392	7,302	5,232
Total	912,191	75,517	53,991	46,457	435,078	55,940	448,949	34,359	630,074	1,820,600	3,469,200	9,924	38,022	35,064
Texas Gulf Coast	150,507	2,873	7,561	7,704	71,003	10,356	62,244	7,386	64,935	373,800	219,400	43	5,949	8,427
Louisiana Gulf Coast	44,254	6,397	626	5,196	22,818	4,829	17,480	822	65,266	142,700	360,600	2,448	4,289	897
January	72,399	6,426	4,322	3,284	34,300	4,599	36,958	2,945	58,885	138,000	188,400	661	2,473	2,542
February	65,952	6,079	4,322	3,141	31,312	4,288	34,541	2,503	50,027	126,800	208,200	617	2,088	2,059
March	74,094	6,614	3,282	3,897	34,626	4,437	37,625	2,943	56,372	130,100	227,500	738	2,778	2,602
April	73,799	6,660	4,553	3,617	34,651	4,354	37,612	2,899	57,976	134,900	282,600	763	2,973	2,910
May	77,216	7,204	4,403	3,688	36,290	4,756	38,649	3,005	53,783	150,800	315,100	994	3,405	2,701
June	77,109	7,291	4,382	3,548	35,606	4,790	37,416	2,928	52,714	153,800	326,900	1,114	4,393	3,243
July	79,506	6,413	4,575	3,766	37,815	4,374	37,880	2,936	46,171	157,900	386,000	1,097	3,712	3,328
August	80,442	6,290	5,937	4,305	38,590	4,908	39,189	3,143	53,377	168,900	378,700	976	3,470	3,545
September	78,108	5,991	4,168	4,188	37,242	4,600	37,546	2,852	44,513	161,200	364,700	784	3,212	3,213
October	82,722	5,668	4,440	4,829	39,883	5,162	39,048	2,885	56,377	172,300	355,600	789	3,653	3,190
November	75,363	5,698	4,910	3,931	37,360	4,776	36,134	2,555	50,775	155,000	247,600	692	3,167	2,870
December	75,480	5,183	4,695	4,263	37,403	4,796	36,351	2,765	49,104	170,900	187,900	699	2,698	2,821
STOCKS END OF MONTH:	(†)		(‡)	(‡)										
January	35,505	7,099	38,388	.....	40,360	8,755	32,522	8,649	125,986	462,500	229,100	653	.....	.....
February	36,982	7,808	38,195	.....	45,463	8,050	30,118	8,534	143,057	445,900	235,600	652	.....	.....
March	37,824	9,088	38,808	.....	48,345	7,758	30,195	8,853	161,966	459,500	250,100	691	.....	.....
April	39,299	8,981	39,727	.....	47,188	7,417	32,404	8,527	174,208	505,000	248,800	735	.....	.....
May	40,521	8,646	40,457	.....	44,548	7,593	35,626	8,370	183,308	539,800	236,300	814	.....	.....
June	40,319	7,564	42,877	.....	42,177	8,193	37,451	7,869	193,164	567,000	247,100	750	.....	.....
July	41,574	6,837	42,691	.....	37,774	8,551	40,075	7,524	194,896	629,500	243,300	733	.....	.....
August	40,787	6,211	43,549	.....	33,772	8,394	39,316	7,478	194,649	672,400	246,800	742	.....	.....
September	39,437	5,968	43,673	.....	33,156	8,569	40,646	7,589	187,319	711,000	230,500	682	.....	.....
October	38,807	6,256	§46,315	.....	35,096	8,515	§38,717	8,021	190,727	733,100	227,400	687	.....	.....
November	38,907	5,328	45,953	.....	37,980	8,902	37,753	8,117	187,247	744,300	234,000	835	.....	.....
December	40,222	5,973	45,833	.....	43,245	9,095	34,425	8,269	189,592	745,400	240,300	1,006	.....	.....

*Includes 2,377,000 bbls. natural gasoline turned into pipe lines. †East of California. ‡Stocks of natural gasoline included in unfinished oil. §Approximately 2,500,000 bbls. transferred from gas and fuel oil to unfinished oils.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

(Thousands of barrels of 42 U. S. gallons)

	Jan. 31	Feb. 28,	Mar. 31,	Apr. 30,	May 31,	June 30,	July 31,	Aug. 31,	Sept. 30,	Oct. 31,	Nov. 30,	Dec. 31,	Dec. 31,
EAST OF CALIFORNIA:													
At refineries: By location of storage:	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1928
East Coast: Domestic	8,340	9,129	9,050	9,442	9,367	8,202	9,292	8,221	8,899	8,940	8,695	8,955	8,496
Foreign	5,072	5,690	6,380	6,313	6,484	5,382	4,910	4,370	3,748	4,067	3,208	3,989	4,306
Appalachian	2,256	2,358	2,496	2,493	2,645	2,591	2,723	2,697	2,802	2,830	2,952	2,952	3,183
Indiana, Illinois, Kentucky, Michigan, etc.	2,856	2,839	3,094	2,932	2,974	2,945	3,119	2,834	2,809	2,859	3,199	3,305	2,939
Oklahoma, Kansas and Missouri	6,087	6,182	6,411	6,609	6,643	6,796	6,571	6,475	5,669	5,505	5,372	5,610	5,530
Texas: Inland	2,166	1,855	1,952	2,150	2,464	2,578	1,753	1,716	1,745	1,798	1,702	2,034	2,184
Gulf Coast: Domestic	8,130	8,190	8,417	9,016	9,492	9,802	10,512	10,461	10,438	10,144	10,519	10,749	7,206
Foreign	310	273	392	598	344	533	397	372	557	615	585	485	207
Arkansas and inland Louisiana	841	1,260	1,310	1,223	1,470	1,402	1,511	1,468	1,347	1,183	1,046	1,050	758
Louisiana Gulf Coast: Domestic	2,731	3,103	2,986	3,311	3,391	3,975	4,160	4,104	4,384	4,122	3,910	3,930	3,315
Foreign	1,717	1,845	2,316	2,070	1,818	1,649	1,530	1,469	1,663	1,574	1,535	1,499	1,359
Rocky Mountain	2,098	2,066	2,108	2,123	2,075	2,028	1,933	1,811	1,343	1,426	1,512	1,636	2,046
Total	42,604	44,790	46,912	48,280	49,167	47,883	48,411	46,998	45,405	45,063	44,235	46,195	40,529
Pipe line and tank farm stocks (net):													
Domestic, by field of origin:													
New York, Pennsylvania, West Virginia, East and Central Ohio	4,695	4,698	4,711	4,753	4,733	4,659	4,551	4,548	4,524	4,572	4,475	4,665	4,751
Kentucky	807	815	799	874	866	778	834	789	765	805	690	574	764
Lima-Northeast Indiana	1,115	1,085	994	979	854	770	732	637	529	470	477	544	1,162
Illinois-Southwest Indiana	11,312	11,254	11,343	11,150	11,128	10,868	10,615	10,598	10,302	10,363	10,371	10,411	11,367
Oklahoma, Kansas; Panhandle, Central North and West Texas	240,554	243,844	245,383	244,919	244,430	245,856	249,910	254,638	257,018	255,935	253,195	252,322	239,345
Northern Louisiana and Arkansas	26,413	25,836	25,196	24,867	23,278	23,148	23,079	22,867	22,252	21,815	21,460	21,590	26,403
Gulf Coast	18,788	18,521	19,490	19,966	20,381	20,630	20,473	20,497	20,715	20,700	20,460	20,129	18,272
Rocky Mountain	25,237	25,141	24,942	24,635	24,462	24,303	24,339	24,476	24,739	24,672	24,659	24,656	25,501
Total	328,921	331,194	332,858	332,143	330,132	331,062	334,533	339,050	340,844	339,333	335,787	334,891	327,565
Foreign: Atlantic Coast	69	83	59	94	110	60	85	67	45	71	105	80	49
Gulf Coast	267	320	233	191	173	154	137	99	71	44	25	32	210
Total	336	403	292	285	283	214	222	166	116	115	130	112	259
Total refinery, pipe line and tank farm	371,861	376,387	380,423	380,708	379,582	379,159	383,166	386,214	386,365	384,511	380,152	381,198	368,353
Producers' stocks	6,563	6,474	6,505	6,551	6,728	6,704	6,547	6,470	6,433	6,314	6,231	6,198	6,521
Total stocks east of California	378,424	382,861	386,567	387,259	386,310	385,863	389,713	392,684	392,798	390,825	386,383	387,396	374,874
CLASSIFICATION BY GRAVITY (approximately):													
East of California:*													
Light crude (24° and above)	326,465	330,176	333,279	334,365	334,270	334,416	339,921	344,265	345,298	344,195	341,204	341,829	319,928
Heavy crude (below 24°)	45,396	46,211	46,783	46,343	45,312	44,743	43,245	41,949	41,067	40,316	38,948	39,369	48,425
California: Light (20° and above)	20,110	23,176	25,167	27,774	30,451	33,369	34,583	37,853	40,627	42,676	42,005	41,049	17,755
Heavy (including fuel oil)	98,991	99,883	101,255	101,128	102,219	103,872	105,687	108,445	110,132	111,685	111,449	112,406	99,218

*Exclusive of producers' stocks.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS IN 1929, BY MONTHS

(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by field of origin:	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Appalachian	2,602	2,338	2,652	2,596	2,923	2,830	3,073	2,961	2,900	3,111	3,148	2,960	34,094	32,908
Lima-Indiana	155	129	219	140	259	256	202	248	233	193	108	43	2,165	1,649
Michigan	158	129	144	157	231	478	694	622	494	519	460	409	4,495	595
Illinois and southwest Indiana	645	593	590	725	651	847	885	663	598	582	576	528	8,183	8,232
Mid-Continent	47,375	41,487	46,905	47,355	51,443	46,851	49,125	48,790	48,346	50,848	48,939	48,185	575,649	534,853
Gulf Coast	3,847	4,182	3,457	4,297	4,269	4,136	4,839	4,852	4,545	5,406	5,521	5,677	55,028	46,429
Rocky Mountain*	2,421	2,043	2,408	2,444	2,435	2,431	2,363	2,339	2,156	2,497	2,301	2,334	28,172	31,084
Deliveries and exports	57,203	50,901	56,375	57,714	62,211	57,809	61,181	60,475	59,572	63,156	61,053	60,136	707,786	655,750
Deliveries	55,935	49,999	55,204	56,760	60,768	55,990	58,792	58,848	57,974	61,018	59,198	58,813	689,299	642,466
Foreign petroleum	7,998	6,949	6,901	7,835	7,554	6,660	6,114	5,856	7,003	5,767	4,539	5,904	79,080	79,591
Deliveries of domestic and foreign petroleum	63,933	56,948	62,105	64,595	68,322	62,650	64,906	64,704	64,977	66,785	63,737	64,717	768,379	722,057

*Includes Alaska.

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN THE UNITED STATES, IN 1929, BY MONTHS*

(Thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Crude oil	.....	241	155	.....	95	170	440	198	.....	.....	.....	.....	1,299	2,301
Refined products:														
Gasoline, naphtha, etc.	1,823	1,735	1,550	2,110	1,498	1,593	2,346	2,367	2,050	2,299	2,131	1,976	23,483	16,779
Tops	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	339
Kerosene	.....	.....	.....	.....	.....	.....	72	.....	.....	54	50	53	229	1
Gas oil	334	343	480	113	79	77	.....	203	658	491	290	656	3,724	2,504
Diesel oil	.....	.....	.....	20	.....	2	76	.....	.....	.....	42	.....	140	
Fuel oil	.....	8	51	2	2	3	4	.....	3	25	3	75	179	849
Lubricants	2	2	1	1	1	71	1	71	9	12	.....	11	182	335
Asphalt	3	3	3	2	3	2	2	2	2	2	2	2	28	29
Total refined	2,162	2,091	2,085	2,248	1,583	1,753	2,501	2,643	2,722	2,886	2,518	2,773	27,965	20,835
Total all oils	2,162	2,332	2,240	2,248	1,678	1,923	2,941	2,841	2,722	2,886	2,518	2,773	29,264	23,136

*Compiled by the San Francisco office of the Bureau of Mines.

(Continued on Next Page)

CRUDE PETROLEUM PRODUCED IN UNITED STATES IN 1929 BY FIELDS

(Thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Appalachian	2,589	2,349	2,649	2,713	2,901	2,668	3,021	2,913	2,852	3,199	2,936	3,024	33,824	31,059
Lima-Indiana	108	99	128	125	134	152	164	153	125	134	115	110	1,547	1,670
Michigan	158	129	144	162	236	483	699	627	499	522	460	409	4,528	594
Illinois and southwest Indiana	591	536	680	533	630	588	633	647	603	644	584	568	7,237	7,425
Mid-Continent	48,614	44,100	47,824	46,582	49,510	48,097	52,900	53,176	50,021	49,158	45,174	47,362	583,058	553,027
Gulf Coast	4,384	3,925	4,436	4,793	4,704	4,455	4,652	4,896	4,783	5,411	5,301	5,366	57,106	46,689
Rocky Mountain*	2,157	1,947	2,209	2,137	2,262	2,272	2,426	2,503	2,446	2,458	2,314	2,358	27,489	29,199
California	23,453	22,371	24,393	23,367	24,122	24,692	26,814	27,250	26,124	26,904	21,334	21,710	292,534	231,811
Total	82,054	75,456	82,463	80,412	84,499	83,407	91,309	92,165	87,453	88,430	78,758	80,917	1,007,323	901,474
Classification by gravity (approximate):														
Light crude	73,196	67,664	73,785	72,092	76,237	75,536	83,019	83,494	79,117	79,440	70,005	71,855	905,440	805,534
Heavy crude	8,858	7,792	8,678	8,320	8,262	7,871	8,290	8,671	8,336	8,990	8,753	9,062	101,883	95,940

*Includes Alaska.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM BY MONTHS*

(Thousands of barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
Imports	8,075	7,016	6,790	7,828	7,552	6,591	6,122	5,800	6,953	5,766	4,554	5,886	78,933	79,767
From Venezuela	5,622	4,791	4,923	5,201	5,138	4,186	3,973	3,016	4,394	3,022	3,151	3,236	50,653	46,977
From Mexico	784	529	586	1,113	1,281	1,624	1,234	1,445	1,604	1,043	708	712	12,663	17,584
From Colombia	1,272	1,378	888	1,330	857	637	792	914	845	1,591	420	1,696	12,620	11,838
From Peru	212	239	265	.....	166	.....	.....	286	.....	.....	166	120	1,454	1,224
From other countries	185	79	128	184	110	144	123	139	110	110	109	122	1,543	2,144
Exports:														
Domestic oil	1,972	1,678	1,600	1,726	1,932	2,615	3,117	2,236	1,988	2,869	2,579	2,089	26,401	18,966
To Canada	1,506	1,354	1,249	1,279	1,728	2,248	2,872	1,922	1,782	2,592	2,223	1,657	22,412	15,431
To other countries	466	324	351	445	204	362	245	314	206	277	356	432	3,982	3,530
Shipments	.....	.....	.....	2	.....	5	.....	.....	.....	.....	.....	.....	7	4
Foreign oil	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
California crude oil†	704	776	429	770	489	791	728	609	390	731	724	766	7,907	5,682

*Bureau of Foreign and Domestic Commerce. †Included in total exports of domestic crude.

NATURAL GASOLINE AND MOTOR FUEL IN THE UNITED STATES IN 1929, BY MONTHS

(In millions of gallons)

	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	1929	1928
NATURAL GASOLINE:														
Production by fields:														
Appalachian	11.4	10 9	9.3	8.2	8.0	6 3	5.9	6.3	6.7	8 9	9.4	10.3	101 6	99.7
Kentucky, Illinois, etc.	1.4	1.2	1.3	1.2	1.2	.9	.9	.9	.9	1 3	1.3	1.4	13 8	14.2
Oklahoma	55.1	47.5	57.0	57.0	58.6	57 4	57 6	57 5	59.2	59.4	55 6	54 6	676 5	616.3
Seminole	26.4	23 4	28 2	29.1	30 3	30.9	31.0	30 9	31 7	30 4	27.4	25.2	344 9	247.5
Osage County	7 1	6.0	7.8	7 3	6.7	6 4	6.6	7 0	6.9	7.6	7 8	7.3	84.5	98.7
Rest of State	21.6	18 1	21 0	20.6	21 6	20 1	20 0	19 6	20.6	21.4	20 4	22 1	247 1	270.1
Kansas	3.1	2.8	2.9	3.0	3.0	2 6	2.5	2.5	2.7	2 8	3.1	2.8	33 3	35.7
Texas	31 2	29 8	33.9	33 4	34 1	32 5	33.2	35 3	37 3	40 7	40.9	40.0	422 3	331.0
Panhandle	12 2	11 5	13.3	13.3	13 4	12 8	13.5	15.8	17.8	19.3	20 8	20.1	133.8	112.5
North Texas	3 9	3.9	4.6	4.2	4 2	3.9	3 9	3.7	3.8	3.9	4.2	4.2	48.4	44.9
West Central	13.5	12 1	12 8	12.6	12 9	12.2	13.1	12.2	12.2	13.8	12.6	12.3	151 3	156.7
Rest of State	1.6	2 3	3 2	3.3	3 6	3 6	3.7	3 6	3.5	3.7	3.3	3.4	38 8	16.9
Louisiana	5 1	4 9	5.1	4.7	4.9	4 8	4.9	5.1	5.2	6.3	6 1	6.3	63.4	55.5
Arkansas	2.7	2 4	2.7	2.7	2.7	2 6	2.7	2.8	2.8	2.9	2.7	2.6	32 3	32.5
Rocky Mountain	3.3	3.2	3 7	4.0	4 3	4 1	4.0	4.2	4.3	4.4	3.9	4.1	47.5	45.9
California	54.0	54.2	65.8	64.9	65 6	67.3	73.8	74.7	73 0	79.6	66.2	65.1	804 2	546.9
Long Beach	18.4	18.4	20 9	20.4	19.5	19.2	20.5	20.2	19.3	20.1	15.8	15.1	227.8	177.1
Ventura Avenue	6.0	5 5	6.3	6.2	6 5	6.8	6.7	7.0	6.8	7.1	6.3	5 4	76 6	65.5
Seal Beach	2.7	2.7	3 4	3.8	3.7	3.5	3.9	3.9	2.8	4.3	3.3	3.3	41 3	30.9
Huntington Beach	3.8	3.4	3.0	3.4	3.4	3.4	3.5	3.6	3.4	3.7	3.6	3.7	41 9	50.1
Santa Fe Springs	9.0	11.0	16.4	15.5	16 6	19.3	22.7	23 4	24.7	26.2	18 3	19 2	222 3	39.6
Rest of State	14.1	13.2	15.8	15.6	15 9	15 1	16 5	16.6	16.0	18.2	18 9	18.4	194.3	183.7
Total United States	167.3	156.9	181.6	179.1	182.4	178 5	185.5	189 3	192 1	206 3	189.2	187.2	2,195 4	1,777.7
Daily average	5.4	5.6	5.9	6.0	5.9	6 0	6 0	6.0	6.4	6 7	6.3	6.2	6.0	4.9
Stocks at end of period	31.1	34.5	41.8	49.0	58.4	57.0	48.5	37.5	27.8	20.6	21.6	25.4	25.4	25.5
Indicated deliveries	161.7	153.5	174.3	171.9	173.0	179.9	194.0	200.3	201.8	213.5	188.2	183.4	2,195.5	1,783.0
Blending at plants:														
Natural gasoline used*	2.3	1.8	2.0	2.5	2.7	2.6	2.9	2.7	2.5	2.0	1.9	1.8	27.7	26.7
Naphtha used*	2.6	2.2	2.4	3.2	3.4	3.0	3.0	2.9	2.7	2.4	2.5	2.0	32 3	34.3
Stocks of blends end of period	.9	1.0	.8	1.0	1.0	1.1	1.1	1.0	1.0	.9	.7	.7	.7	1.1
INDICATED OUTPUT OF MOTOR FUEL:														
Gasoline produced at refineries	1,440.6	1,315.1	1,454.3	1,455.3	1,524.2	1,495.5	1,588.2	1,620.8	1,564.2	1,675.1	1,569.1	1,570 9	18,273.3	15,831.7
Natural gasoline blended at plants*	2.3	1.8	2.0	2.5	2.7	2.6	2.9	2.7	2.5	2.0	1.9	1.8	27.7	26.7
Natural gasoline sold to jobbers (est.)	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	25 2	25.2
Benzol produced†	10.5	9.8	11.1	10.7	11.2	10.8	11.1	11.1	10.6	11.1	10.3	10.0	128.3	118.0
Total United States	1,455.5	1,328.8	1,469.5	1,470.6	1,540.2	1,511.0	1,604.3	1,636 7	1,579.4	1,690.3	1,583.4	1,584 8	18,454.5	16,001.6
Daily average	47.0	47.5	47.4	49.0	49.7	50.4	51 8	52 8	52 6	54.5	52.8	51.1	50 6	43.7

*East of California. †Estimated with production of by-product coke as a basis.

ROCKY MOUNTAIN AREA

(Continued from Page 50)

is bottomed in the pay at 4,215 feet and is running tubing, and its No. 2-A State, SE cor., Section 25-18-37, is drilling at 1,600 feet in the red beds. Same company's No. 10 Bowers, NE NW SW, Section 29-18-38, cemented the 7-inch at 3,976 feet.

The Mid-Continent Oil Co.'s No. 1 Fowler, NE NW NW, Section 31-18-38, is drilling at 1,400 feet in red rock with the 13⅜-inch cemented at 211 feet.

The Midwest Refining Co.'s No. 26 State, C SE SW, Section 4-19-38, is drilling at 3,262 feet in salt and anhydrite and had a show of gas at 3,219-24 feet and a show of oil at 3,235 feet, and its No. 1 McKinley, NE cor. NW, Section 5-19-38, cemented the 6⅝-inch at 3,920 feet.

The Ohio Oil Co.'s No. 4 State, SW cor., Section 30-18-38, spudded on October 14 and is drilling at 90 feet in the red beds.

The Shell Petroleum Corp.'s No. 2 Berry, NW cor. SE, Section 31-18-38, topped the anhydrite at 1,570 feet and is drilling in salt at 2,212 feet, and its No. 3 McKinley, SE cor. ,Section 19-18-38, is a location. Its No. 8 McKinley, C N half N half SE, Section 19-18-38, topped the anhydrite at 1,505 feet and is drilling in salt at 2,490 feet.

The Skelly Oil Co.'s No. 2 Fowler, SE cor. NW, Section 31-18-38, is drilling at 1,350 feet in the red beds.

The Sun Oil Co.'s No. 2 McKinley, NW cor. NE, Section 5-19-38, is drilling at 3,815 feet in lime.

The Tidal Oil Co.'s No. 4 Grimes, SE cor. NE, Section 29-18-38, is drilling at 245 feet in the red beds.

The Texas Pacific Coal & Oil Co.'s No. 2-G State, NE cor. SE, Section 24-18-37, is sidetracking at 3,935 feet.

The Tidal Oil Co.'s No. 3 Hardin, SW NW NE, Section 19-18-38, cemented the 9⅝-inch at 2,750 feet, and its No. 2 Hardin, SW SE NE, Section 19-18-38, cemented the 9⅝-inch at 2,754 feet.

The Vacuum Oil Co.'s No. 1 Berry, NE cor. SW, Section 31-18-38, is drilling at 1,498 feet in the red beds.

Eunice Area—Lea County

The Continental Oil Co.'s No. 1 A. E. Meyers, NE SW SW, Section 17-21-36, the discovery well, which gauged 1,300 bbls. in 24 hours at a total depth of 4,001 feet last January, and then shut in, was opened the past week for a test and averaged 76.5 bbls. per hours for eight hours. The Tidal Oil Co.'s No. 1 Coleman, SW cor. NE, Section 17-21-36, half a mile northeast of the Continental's well, has averaged 990 bbls. a day for the past seven days. The Shell Petroleum Corp.'s No. 1 Colman, NW cor. SE, Section 17-21-36, an offset on the north to the Tidal's well, is a location, 2,310 feet out from the east and south lines.

Eddy County

Leonard & Levers' No. 4 State, SE SW, Section 21-17-29, in the Maljamar area, was completed at 2,278 feet as a gas well and gauged 5,500,000 feet a day. The pay was at 2,214-78 feet. The top of the lime was at 2,197 feet and the elevation is 3,613 feet. It is south and a little west of three gassers drilled by the same company and proves up about one-fourth of a mile of territory. The gas is under contract to the Pecos Valley Gas Co.

Contract has been let to the Western Transit Co. of Tulsa for the construction of a 25-mile 4-inch pipe line from the Getty Pool to the State Oil & Refining Co.'s plant at Dayton. Crude from the Getty Pool is being trucked at present.

Lovington Area—Lea County

Galt, Brown and others' No. 1 State, SW NW NW, Section 9-15-35, is drilling at 1,315 feet in the red beds and carrying the 12½-inch.

Otero County

R. H. Ernest and others' No. 1 Located Land Co., 330 feet from the east line and 330 feet from the south line of Section 20-25s-7e, drilling at 1,004 feet, carrying 12½-inch pipe.

San Juan County

The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is being recemented at 2,012 feet under the supervision of a representative of the United States Bureau of Mines. The well is bottomed in the top of the Picture Cliff at 2,016 feet. The first cementing job failed to hold and the drillers, expecting to go through 12 to 15 feet of hard sand after penetrating the 3-foot caprock before reaching the pay, did not stop to recement. However, after shutting down for the day, the well blew in unexpectedly. No gauge was taken, but the flow was estimated at around 5,000,000 feet a day. The gas was very wet and indicated that in deeper horizons of that formation oil may be encountered. The well is running about 130 feet higher than the nearest gasser, 3 miles to the northwest. The Murchison Oil Co.'s No. 2 Angel Peak, SW SE, Section 11-28-11, is on top of the Picture Cliff at around 1,840 feet and is standardizing.

J. B. Witt Oil & Gas Co.'s No. 1 Mangum SE SW SE 33-29-11, San Juan County, New Mexico, is to drill to Picture Cliff sand.

Rio Arriba County

The Standard Oil Co. of Colorado has closed a deal for 21,500 acres in the El Vardo district in Rio Arriba County, 35 miles south and a little west of the town of Chama, and is under contract to start a test within four months. Dean E. Winchester mapped the structure which has two domes, one with a closure of 500 feet and the other 600 feet. The Pennsylvanian will be the objective and the first well will be about 3 miles from the El Vardo dam.

COLORADO

Weld County

The Platte Valley Petroleum Co.'s discovery on the Greasewood Dome in Weld County, northeastern Colorado, is attracting more attention than any other

strike which has taken place in the Rocky Mountain area for several years with the exception of the new pools opened up in southeastern New Mexico. Scouts for most of the major companies in this territory, augmented by some from Kansas, Oklahoma and Texas, are keeping close watch on the well and are scouting the surrounding country. Leasing is taking place and the opinion is generally held that the discovery gives promise of developing into a major operation.

The Platte Valley company's well is located on the Patterson farm in the NE SE NW, Section 24-6n-61, half a mile to the northeast of the location which has been carried heretofore. Since it blew in at 1:30 o'clock on the morning of October 10, at a total depth of 6,667 feet, no further attempt has been made to drill it deeper. Neither has it been shut in up to this time pending completion of arrangements for going into the sand. The boiler has been moved back, but has not yet been connected up with the fuel tank. The Continental Oil Co. moved in two 500-bbl. tanks from Fort Collins and both are set up. Another tank of 5,000-bbl. capacity is being cut down in the Fort Collins Field and moved to the Greasewood well. The well was connected up last Friday morning, a 4-inch line leading off to the gunbarrel tank which separates the gas from the oil and from there it is piped into one of the storage tanks.

No Definite Gauge Made

No definite gauge has been made on the well, but in the first 24 hours it put approximately 180 bbls. of crude into the tank. Sunday afternoon, 2½ days later, the tank lacked about a foot of being full, which with the oil in the gunbarrel indicated that 180 bbls. a day is about the present output. The oil tests from 40° to 42° on the Baume scale. The 4¾-inch casing is 40 feet off the bottom and the plans are, starting in about 10 days, to underream and lower it to bottom and then drill deeper.

The last cuttings from the well were shale and it is not definitely known how far it will have to go to pick up the sand, but the drillers place the distance at 20 to 40 feet. The supposition is that it is just off the Muddy, the first sand of the Dakota series. The well makes a head about every 3½ to 4 hours and the heads last a little longer than at first, being from 20 to 25 minutes, and the flow at each head is estimated at 20 to 30 bbls. A wide space around the well has been plowed up to reduce the fire hazard and visitors are not admitted inside this area.

The well commenced spudding in May, 1926, and as geological reports on the structure at that time were not favorable, there being few outcrops upon which to work out a closure, it was not regularly scouted. The result is that few companies have any maps of the dome and such as are available are based only on the few dips that could be located. The approximate casing record, as given by the drillers is as follows: Several joints of 12½-inch; 1,500 feet of 10-inch; 3,000 feet of 8¼-inch; 4,000 feet of 6¼-inch; and 6,600 feet of 4¾-inch.

Pipe Line Planned

The Platte Valley company has applied to the Public Utilities Commission for a permit to build a pipe line from the well to Orchard, on the Union Pacific Railroad, a distance of 10 miles. The Continental Oil Co. also has filed an application for a permit to build from the well to Orchard and thence via Brighton to its refinery now under construction just north of Denver.

The lease play extends from 5 to 6 miles to the northwest of the well and 10 to 15 miles to the southeast. While the fold is estimated to be about 20 miles long, no one can tell its extent or direction definitely, but the play is based on the theory that the structure trends in a northwest-southeast direction. While there is trading under way, few of these are being made public. The Ohio Oil Co. is reported to have made a deal with G. G. Gerhart, an Orchard grocer, for 160 acres close in to the discovery for which it agreed to pay $16,000, or $100 per acre. The contract calls for a well within a year.

These tracts are located as follows: SW SE, Section 24-6n-61, the section in which the discovery well is located; NW NW, Section 25-6n-61, the adjoining section on the south; and the W half SW, Section 19-6n-60. The last named is across the line in Morgan County.

Continental Acquires Acreage

The Continental Oil Co. acquired 320 acres in Sections 23, 24 and 26 and additional acreage farther out. The Oil Lease Purchase Association, Inc., purchased half of the royalty on the N half NE, Section 25-6n-61.

J. W. Clayton, who used to be with the Cosden Oil & Gas, Gypsy Oil and other major companies, is manager and director of this company which has production in the Seminole Field and in Stevens County, Kansas. Mr. Clayton was associated with Charles T. Lupton in opening the Cat Creek Field in Montana. Lupton is consulting geologist for the company.

The Platte Valley Co. has about 8,000 acres around the discovery well. While it may encounter a little trouble down the line, Walter E. Schwed, attorney for the company, says its leases are in good shape and that as a whole it is sitting on top of the situation. It is expected that the next well to be drilled will be an offset on the north on the Johnson farm.

Three operations in other parts of the county are idle and are as follows: The Platte Valley Petroleum Co.'s No. 1, SE NW, Section 5-8n-56, Stoneham Dome, has been shut down at 350 feet since 1928. The Retter Oil Co.'s No. 1 Smith, C E half, Section 14-1n-66, Brighton district, is shut down at 1,170 feet, and the Eastman Oil Co.'s No. 1 Steel, NE SE NE, Section 14-2n-67, Fort Lupton district, was shut down at last reports at 165 feet.

Morgan County

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, on the Fort Morgan anticline, the same general line of folding upon which the Greasewood well is located, was drilling at 3,395 feet on October 17, as reported by the company.

Arapahoe County

The MacDeb Drilling Co.'s No. 1 Fitzsimmons, C S half NE, Section 7-4s-66, Aurora district, which has been held up for several months at 5,692 feet with casing trouble, has swedged the 6¼-inch so that fishing tools cannot be run to the top of the two drilling strings at the bottom. It is believed that the tools can be recovered within the next few days. The hole is showing some gas through the water and the plans are to drill about 75 feet deeper before deciding whether to reduce the size.

Adams County

Nettie M. Slatts' No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is drilling at 2,425 feet.

Elbert County

The Belmont Oil Co.'s No. 1 Maher, SE NE SW, Section 4-6s-59, Deer Trail district, is shut down at 3,720 feet with the 6⅝-inch on bottom. It was drilled to this depth with an old Star rig and reached the capacity for the equipment last spring. Since then the well has been idle while the owners have been trying to finance a standard outfit. The last 200 feet of hole was in shale that had good showings of oil all the way down.

Washington County

The Middlemist Oil Co.'s No. 1 Middlemist, SE SW SE, Section 14-4s-56, Middlemist Dome, which has been shut down at 1,030 feet with the 15½-inch cemented on bottom, is preparing to resume.

Jefferson County

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, is drilling in hard rock at 3,732 feet.

Baca County

The A. R. Jones Oil & Operating Co.'s No. 1 Boice Cattle, Tract 50-34s-42, is shut down at 3,815 feet.

Archuleta County

The Standard Oil Co. of Colorado's No. 1 Crowley, NE cor., Section 2-32n-2e, Price Dome, has casing on the ground and is preparing to run the 8¼-inch to 247 feet. At this depth it was in the top of a sand, supposedly the Mesa Verde, which made 500,000 feet of wet gas. It was decided to case before drilling into the sand. Same company's No. 1 Fitzhugh, SE SW, Section 34-33-1e, Chromo Dome, is waiting for casing at 502 feet.

Pueblo County

The Kuykendall Oil Corp.'s No. 1 Beecher, SW cor., Section 7-22-66, Rock Creek, underreamed and lowered casing to 750 feet where a water shut-off in the Morrison was made, and is drilling at 780 feet.

Huerfano County

The Midland Petroleum Co.'s No. 1 Campbell, NE SE, Section 4-29-69, Oak View, is resuming at 500 feet. It topped the Pierre shale at 60 feet and has the Dakota as the objective.

La Plata County

The Murchison Oil Co.'s No. 1 Doesher, SW cor. NW, Section 29-33-13, is resuming at 700 feet after laying a 6½-mile 2-inch water line to the La Plata River. The E. B. Klem Petroleum Co.'s No. 1 Olbert, Section 9-35-12, has recovered tools and is drilling at 2,712 feet in the La Plata (Sundance) formation with shows of oil.

Park County

The South Park Oil Co.'s No. 1 Milligan, NE SE, Section 13-8s-76, is preparing to run the 8¼-inch at a total depth of 1,580 feet, and the South Park Oil & Gas Co.'s No. 1 Esche, SE NW, Section 5-9s-76, is drilling at 600 feet in sand which the driller identifies as the Hygiene. It showed a little gas, rainbow colors and a small quantity of water. It will be cased off with the 10-inch.

Grand County

The Oil & Mineral Lands, Inc., is moving in a rig for a test on the McElroy Ranch in 2n-81w, Kremmling Dome. Location will be in either Section 13 or 14. It will start in a 15½-inch hole with standard rig for a test to the Dakota at 3,500 feet.

Larimer County

The first shipment of oil from the Fort Collins Field to the Continental Oil Co.'s refinery under construction just north of Denver was made on October 17 and consisted of five tank cars. This was the first oil delivered to the new refinery which will start operations January 1. Shipments will continue at the rate of five cars a day until the two 55,000-bbl. tanks at the refinery are filled.

The Continental Oil Co.'s No. 5 Scott, SW SE, Section 6-9-68, Wellington Dome, is drilling at 4,612 feet in the top of the Lakota sand. This is an old well in the Muddy being deepened to test the Lakota. At 4,595 feet water rose 700 feet in six hours. C. Leonard Smith's No. 1 State, SE cor., Section 36-12n-70, Sand Creek, is drilling at 210 feet in lime and is through the honeycomb formation which caused the loss of three holes. It had a good show of oil and gas in shale at around 90 feet. This is a Pennsylvanian test.

Routt County

The Texas Production Co.'s No. 4 Carstarphen, NW NW, Section 5-6n-86, Tow Creek, is drilling at 2,579 feet.

Moffat County

The Midwest Refining Co.'s No. 24 Hannewalt, NE SE SE, Section 4-6n-92, Bell Rock, is sidetracking two bits at 3,035 feet, 7 feet off old bottom, and appears to have overcome trouble which has delayed drilling for the past month. This well had 32,000,000 feet of gas in a 25-foot sand in the lower Mesa Verde at 2,900 feet and is drilling to the objective Morapas sandstone which is expected within the next 200 feet. The Texas Production Co.'s No. 4 Wick, NW NW, Section 10-4n-91, Moffat Dome, is drilling in broken sand at 4,165 feet. This is a Dakota sand well being deepened to the Sundance. Same company's No. 12 Knowlton, SW SE, Section 33-5n-91, is drilling in the Sundance at 4,585 feet with 2,900 feet of oil in the hole. S. H. Keoughan's No. 1 State, SW SW, Section 16-4n-101, Skull Creek, is fishing for tools at 2,950 feet.

WYOMING

Sweetwater County

The Mountain Fuel Supply Co.'s No. 1 Union Pacific, C NW NE, Section 13-19-104, North Baxter Basin, was completed in the Sundance sand at 3,466 feet with an open flow production of 3,500,000 feet of gas per day. Same company's No. 1 Capper, SW cor. NE, Section 2-19-104, is bottomed at 3,200 feet and cleaning out at 3,141 feet.

Sublet County

The Ogden-La Barge Oil Co.'s No. 1, Section 18-27-113, the deepest test in western Wyoming, is drilling at 6,100 feet, reported by A. G. Burritt, company geologist, to be in the base of the Hilliard shale with the Frontier expected in the next 100 feet. The Circle Oil Co.'s No. 2 Elkhorn Oil, NE, Section 17-27-113, La Barge, is bottomed at 1,350 feet and underreaming the 10-inch to bottom.

Lincoln County

The Wyoming Production Co.'s No. 1 Neill, SE NW, Section 14-24-113, Fontenelle district, is drilling at 1,020 feet and expects the objective at 1,600 feet.

Fremont County

The Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is swedging the 6⅝-inch 200 feet off bottom at 4,485 feet. The Producers & Refiners Corp.'s No. 2, SE NW, Section 33-34-92, Muskrat Dome, is coring at 4,500 feet, and its No. 10, NW cor., Section 14-32-95, Sand Draw, is bottomed at 3,631 feet and redrilling at 3,600 feet.

Carbon County

The Producers & Refiners' No. 3, SE NW, Section 2-19-88, Hatfield Dome, is drilling at 4,313 feet in gray shale with the 4½-inch underreamed to bottom, and its No. 4, SW SE, Section 7-26-89, Wertz Dome, is bottomed at 3,392 feet and drilling out cement. The Midwest Refining Co.'s No. 27 Union Pacific, SE SE, Section 11-20-81, Elk Mountain, cemented the 20-inch at 102 feet in black shale.

Natrona County

The Golden West Oil Co.'s No. 1 State, Section 36-36-81, Segment Basin, cemented the 12½-inch at 880 feet. The Muddy is expected at 1,100 feet. The Midwest Refining Co.'s No. 11 Geary Dome, SE NW NW, Section 32-34-77, has all the material for rig on location. The Cuyler Oil Co.'s No. 1 Ogden, SW, Section 24-36-85, Powder River, is bottomed at 1,301 feet, where the 10-inch was cemented, and is testing water shut-off.

Converse County

The Phillips Petroleum Co. is doing extensive core drilling in the area between Douglas and the Lance Creek Field to work out the geology. This is being done under a contract with R. G. Taylor and associates who have 100,000 acres blocked up. The Continental Oil Co.'s No. 50 Whiteside, SW SW, Section 9-33-76, Big Muddy, is drilling out cement at 3,304 feet, and the Weisman Big Muddy Oil Co.'s No. 1, SW SE, Section 6-33-76, is drilling below the Niobrara shale at 2,705 feet.

Niobrara County

The Ohio Oil Co.'s No. 4 Converse Sheep, SW SE, Section 32-36-65, Lance Creek, which had a blowout of oil, gas and mud at 3,731 feet, has repaired damage to rig from fire and is preparing to clean out. The top of the Sundance was at 3,612 feet and this sand is estimated to be 20 feet thick. It had apparently penetrated the sand and water from a lower horizon will be plugged off and a test made.

Weston County

Carl Cundy and others' No. 1, NW NE, Section 31-46-63, to the south of the principal producing area in the Osage Field, turned a dry well into a producer the past week and gave the geologists a puzzle to explain. Last August the well cut a dry sand at 1,371-1,417 feet. Last week it was deepened from 1,417 to 1,533 feet and will pump about 12 bbls. a day. The Muddy was found to be badly broken up. It showed from 1,371 feet to bottom. A new operation is Peter Scriber's No. 1 Fee, NE SE, Section 11-47-63, which is ready to run pipe at 391 feet. Pipe line runs and deliveries to refineries last week averaged 1,500 bbls. daily. The Yellowstone Petroleum Co.'s No. 2 McCullough, NW NE, Section 23-46-64, is rigging up, and the Lambie Oil Co.'s No. 6 Bock, C SW NE, Section 14-46-64, is ready to spud. The Osage Trust Co.'s No. 8, NW cor. SE, Section 14-46-64, ce-

mented the 8¼-inch and is waiting. Same company's No. 9, SE cor., Section 14-46-64, is drilling at 800 feet, and its No. 10, CEL NW SE, Section 14-46-64, is spudding. Dornacher, Bock & Monahan's No. 1, SE cor. SW, Section 11-46-64, is ready to spud, and the Lambie Oil Co.'s No. 3 Bock, SW cor. NE, Section 14-46-64, picked up the sand at 1,711 feet and is moving back the boiler to drill in. The Decker Oil Co.'s No. 1, NW NE NE, Section 1-45-64, is shut down for pipe at 1,725 feet, and Henderson, Garbereck and others' No. 1 Bock, SW cor., Section 2-46-64, is drilling at 1,475 feet.

Park County

The Midwest Refining Co.'s No. 31 Frannie Oil, SW cor. NE, Section 25-58-98, Frannie Dome, is shut down for orders at 3,230 feet, and its No. 31 Rosenberg, SW cor. SE, Section 24-58-98, is drilling at 2,510 feet in black shale. The Continental Oil Co.'s No. 27 Elk 2, NE NE, Section 24-58-100, Elk Basin, set the 6¼-inch on top of the second sand at 1,446 feet and will complete it in this horizon. The Texas Production Co.'s No. 2 Sonners, C SW SW, Section 20-51-100, Oregon Basin, spudded on October 14, set the 13⅜-inch at 110 feet and is drilling at 701 feet.

Hot Springs County

The Midwest Refining Co.'s No. 8 Weeks, NW SE, Section 6-44-98, Wagonhound, is bottomed at 4,465 feet and fishing for tools.

UTAH

The Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, is bottomed in hard lime at 2,960 feet and fishing. The Mid-American Oil Co.'s No. 1, SE NW, Section 17-43-15, Bloomington district, Washington County, is resuming at 2,140 feet with Toronto, Canada, capital back of the operation, and the Virgin Dome Oil Co.'s No. 1, NW NW, Section 16-42-14, Harrisburg district, is drilling at 2,700 feet.

MONTANA

In the Sunburst Field, Coolidge & Coolidge's No. 1 Clathworth is a gasser with a production around 4,000,000 feet daily. This gas is coming from both the Sunburst and Stray sands and just across the line, the Hector No. 2 Wildrose, is making 15,000,000 feet from the Sunburst sand. There appears to be a lenticular condition here in the Sunburst.

No. 7 Abel may make a small pumper. It found a little oil in the Ellis but water came too. The sand was shot with 10 quarts and then abandoned and plugged back to the Sunburst where a small show was had. This was shot with 60 quarts and it may make a small producer.

The California Co. drilled No. 4 Shoemaker to 2,500 feet and is abandoning the hole. A small showing of oil was had at 2,350 feet in the lime. Most of the storage in the Sunburst Field is full due to proration.

In the Cut Bank area, Glacier County, the Texas Production Co. has a large gas well on the Small lease. This is the first completion by this company and it makes the earlier predictions that this area is a large gas field seem to have foundation. In the same district, the Northland Corp. found some odd looking oil or tar in the lime. This is a thick, brownish tar and the company is shut down waiting for a string of pipe to test it.

In the Border Field work is closing down for the winter so far as new drilling goes. The producing wells are being equipped for cold weather and the operators hope to continue production through the season. No new wells will be started and the Imperial well that was to have started spudding will not commence before next spring.

In the Cat Creek Field, the Minnesota Flatwillow Oil Co. drilled in a small producer on Section 9-15-29. The pay was found at 732 feet and the well is estimated at 10 bbls.

A Montana division of the Independent Producers Association has been formed with W. M. Fulton as president, W. R. Rice vice president, T. L. Murphy secretary, R. P. Jackson treasurer, and Lee Thurston assistant secretary. The first meeting was held at Great Falls and the association endorsed a stand for tariff on crude oil and a duty of 6 cents on Canadian natural gas.

Pipe Line Runs

Daily average pipe line runs from the various pools for the week ending October 25 follow:

WYOMING	
Salt Creek	28,620
Frannie	90
Big Muddy	2,030
Oregon Basin	1,800
Dutton	140
Elk Basin	790
Byron	10
Warm Springs	100
Lovell	....
Ferris	10
Grass Creek	2,050
Hamilton	910
LaBarge	2,120
Lance Creek	120
Lost Soldier	5,590
Osage	1,390
Poison Spider	390
Rock River	2,090
Simpson Ridge	50
Teapot Dome	30
Dallas-Derby	280
Hudson	220
South Casper Creek	....
Pilot Butte	....
Total	48,830
MONTANA	
Cat Creek	1,100
Kevin-Sunburst	5,080
Pondera	1,700
Lake Basin	80
Border	540
Total	8,500
COLORADO	
Moffat	1,032
Fort Collins	1,133
Florence	447
Iles	1,084
Tow Creek	350
Boulder	25
Rangley	50
Total	4,121
NEW MEXICO	
Hogback	470
Rattlesnake	1,054
Table Mesa	96
Artesia	801
Cap Rock (Maljamar)	432
Jal	1,334
Hobbs High	27,343
Lea City	4,136
Miscellaneous (Lea County)	2,264
Getty	130
Total	38,060
Grand total	99,511
Previous week	108,012
Difference	8, 01

CURRENT SITUATION IN THE OIL INDUSTRY

(Continued from Page 30)

position to co-operate in every proper and helpful activity was never better. It is possible that additional supporting legislation may be necessary in connection with the conservation plan in some instances. The recent decision in Oklahoma, upholding the Oklahoma statutes, have been very encouraging.

A need is felt for either a more liberal interpretation of some of the antitrust laws governing trade, or modifications. The antitrust laws served a good purpose in correcting one extreme but have brought about another.

What, of course, is most desired by all in legitimate business is stability rather than waves of prosperity and depression, and to this end is needed fuller co-operation in industry and such co-ordination with the Government as can be helpful in accomplishing it.

It is quite natural, but nevertheless unfortunate, that many are reluctant to seek corrective legislation for fear that it will involve a certain amount of government supervision, which, however, may or may not be objectionable. Surely there is a middle ground which will aid in stabilizing matters. Every government, regardless of form, is called upon in times of extreme distress to share a part of the burdens and is properly under obligations at other times to guard against extravagances, excesses and extremes.

The oil family, however, is some times looked upon with suspicion and occasionally kicked in the ribs, probably because of its rough pioneer grandfathers and its black sheep. It is, nevertheless, worthy of support and consideration.

In the meantime, regardless of stock market quotations, the intrinsic values in good, sound oil companies have not been lowered.

PANHANDLE FIELDS

(Continued from Page 64)

Midland Oil Co.'s and Wright's No. 1 Reaves, dry and abandoned, total depth 1,381 feet.

Eastland County

Lone Star Gas Co.'s No. 1 Pulley, dry and abandoned, total depth 3,892 feet. Southern Oil and Production Co. and others' No. 2 Chesley, sandy lime 3,737-3,774 feet, initial production 800,000 feet of gas, total depth 3,774 feet.

Erath County

Peters and others' No. 2 Smith, gas sand 3,190-3,195 feet, initial production 1,500,000 feet of gas, total depth 3,314 feet.

Palo Pinto County

Brazos River Gas Co.'s No. 1 Sleigh, oil sand 1,511-30 feet, initial production 12 bbls. on pump, total depth 1,530 feet. Mook Texas Oil Co.'s No. 1 Costello, show oil and gas 3,981-92 feet, dry and abandoned, total depth 4,065 feet.

Shackelford County

Roeser and Pendleton's No. 89 Cook "A," total depth 5,331 feet, plugged back to 3,100 feet, and producing gas from sand 3,020-79 feet, making 400,000 feet of gas.

Stephens County

Rhodes and Higher's No. 1 Hudspeth, show oil 2,460-67 feet, dry and abandoned, total depth 3,325 feet. Texas Consolidated Oil Co.'s No. 1 Walker, location temporarily abandoned.

JERSEY COMPANY ANALYZES PRORATION

(Continued from Page 32)

foreign daily output, according to latest statistics, is only 35.47 per cent of the total, the estimated average shut-in production in fields outside the United States is 45 per cent of the world's shut-in supply.

"Since the birth of the oil industry this country has supplied the bulk of the world's petroleum. Its fields have been exploited for years and many of them greatly depleted, while producing areas abroad have as yet scarcely been scratched, comparatively speaking. All of which points unmistakably to the fact that oil lands outside the boundaries of the United States may be expected to play an increasingly important part in the drama of world production as time goes on.

Two Outstanding Points

"Stepping back once more to look at the whole picture, we find two outstanding points.

"First, with the rising importance of foreign fields and the international scope of the industry today, the need for world co-operation in the economic development of crude resources, wherever they may lie. Secondly, the absolute necessity of encouraging methods for increasing recovery, plus conservation and orderly development of oil lands in the United States if the country is to maintain the premier position among the producing nations of the world."

Turning to the domestic market situation, "The Lamp" discusses in some detail "the other side of proration." Intelligent proration is defined by "The Lamp" as a further step in the direction of unit operation, constituting the last word in efficient and low cost production of oil.

Proration Discussed

"Most operators of oil producing properties," "The Lamp" points out, "regard proration as a nuisance and a burden necessary, perhaps, because of the prevailing overproduction of crude oil which makes some form of control of production imperative—but an unmitigated evil, nevertheless. Proration defers income and hampers freedom of development. It eliminates the possibility of extravagant reward which formerly came to the producer who got his wells down first and in greatest number, and who took from them each day every barrel of oil that could possibly be brought to the surface through them, whether that oil came from beneath his own property or the property of his neighbor. Proration deprives the oil producer of much of the colorful, spectacular atmosphere with which tradition has enveloped him. An oil producer is usually something of an adventurer, impatient of any restraint and accustomed to intense activity which is an almost essential part of his life; therefore, he resents proration and experiences a sense of injury from its operation.

"The advantages of proration are much less obvious to the average man who produces and sells crude oil. If it minimizes waste, that does not seem so important to him—if, indeed, he is aware of it at all. Producers commonly fail to realize that any material waste attends their operations in spite of the widespread escape of excess gas into the air and the admittedly large volumes of oil left in the ground after the gas energy, which should have brought it to the surface, has been dissipated. Many operators feel that they are justified in releasing into the air the gas that comes naturally with the oil even though the proportion of gas to oil be large. They are not impressed, therefore, by the fact that proration, which slows down the rate of production of oil, also retards this waste of gas.

Reducing Costs

"There is one angle of proration, however, which is destined to make a strong appeal to oil producers whenever it is clearly and generally comprehended. Without exception, operators of oil producing properties are keenly interested in the problem of reducing costs. If they should come to understand that proration lowers producing costs, they would immediately view it with less hostility. Yet proration does in fact materially reduce costs—although, because it has as yet rarely been put into effect under favorable conditions, very few operators realize its possibilities in this connection.

"Proration is a step in the direction of unit operation. In so far as it accomplishes unification of development and production activity it effectively reduces costs. A prorated field, in which there is an approach to unit operation, requires fewer wells to be drilled; it permits a more leisurely program of completion of the wells that are drilled; and it makes possible greater recovery per well at a lower cost per barrel. Proration may be wisely planned and exercised, or it may be so applied as to lose much of its possible efficacy. In the one case it can be made to yield most of the benefit which goes with true unit operation, but in the other it may accomplish little beyond perpetuating all the evils of competition on small divided leasehold, adding to these the burden of restricted production and resultant deferred return.

Two Fields Contrasted

"Intelligent proration and the benefits that arise from it may be seen in vivid contrast with proration in an objectionable form if practice in the Yates Pool, Pecos County, Texas, and in the Oklahoma City Pool, in Oklahoma, be compared. These are both large, important fields in which leading companies own most of the productive area, and in each of which proration has been applied from the inception of major producing activity. The plan and methods employed in Yates have accomplished much in the way of conservation and economy of operation in addition to maintaining ratable controlled withdrawals, balanced evenly against the current market demand. In Oklahoma City production has been effectively restricted, but except for this single advantage the burdens of the operating companies have been enlarged rather than diminished.

"Yates Field is four years old; its proven producing area is about 17,000 acres, and over this area 412 producing wells, or less than one well to 40 acres, have been drilled to date. Drilling depths average less than 2,000 feet. The total past production is 98,000,000 bbls., and the current daily average is 100,000 bbls. Not a single drilling rig is operating in the field today.

Oklahoma City and Yates

"Oklahoma City's oil field is two years old. Its proven area is about 11,000 acres. Producing wells number 540, or one well to about 20 acres, and 116 drilling operations are in progress. Drilling depths average more than 6,000 feet. Oklahoma

City has produced a total of 34,000,000 bbls. of oil, and its present daily production, according to latest available figures, averages 92,250 bbls.

"The proration plan at Yates Field divides the productive area into units of 100 acres each. The entire outlet for the field is divided ratably among these units, based on the potential capacity of the average well on each unit to produce oil. Under this plan it is necessary to drill only a single well on each 100 acres to secure a ratable outlet for that unit. All wells are produced continuously through tubing and small chokes against back pressures. The average oil production per well is 183 bbls., and the average gas-oil ratio is 400 feet per barrel.

"The proration plan at Oklahoma City makes the individual well the proration unit, and divides the entire market outlet ratably between wells. The operator with the largest number of completed wells, therefore, gets the largest part of the available outlet, provided only that his wells are of average size. This plan puts a premium on prompt and vigorous drilling and close spacing of wells; general practice drills one well to each 10 acres, in spite of the great depth required and the resultant great expense per well. Wells at Oklahoma City are alternately produced wide open, with the flow of gas and oil impeded as little as possible, and then shut in entirely. This part of the proration plan grew out of mutual distrust among the producers and is designed to prevent any operator from producing his wells at a larger fraction of their capacity than the allowable proration figure, while pretending to adhere to the prescribed figure. If a well is wide open, or is shut in entirely, the facts are apparent to everyone; but no one, except the owner, can tell whether a partly open well is proudcing at 10 per cent or 15 per cent of its potential capacity. This method of operation makes for waste of gas. The daily gas production at Oklahoma City is estimated at from 350,000,000 to 600,000,000 feet per day, or 3,500 to 6,000 feet per barrel of oil produced.

Basis of Comparison

"Under the two plans of proration, if each field were to be prorated to, say, 10 per cent of its potential capacity, the procedure would be as follows:

"Yates Field would produce all of its wells continuously and each 100-acre unit would be permitted to run 10 per cent of the potential capacity of its average well; Oklahoma City would produce each well at full capacity for 10 per cent of the proration period, or, say, for three days out of the month, and then shut it in entirely for 90 per cent of the time, or the remaining 27 days in the month. In actual practice, Oklahoma City produces a well upon completion for about eight hours; then shuts it down entirely for an arbitrary period of about two months, and then flows it at full capacity periodically for a period of about eight hours in each 12 days.

"The energy latent in the gas dissolved in the oil, under the high pressures that maintain in natural petroleum reservoirs, serves to bring the oil to the surface of the ground in the most efficient manner. The volume of gas required to lift a barrel of oil to the surface of the ground and the value of the service so rendered vary directly with the depth down to the reservoir. In Oklahoma City, therefore, more gas is needed per barrel of oil lifted than at Yates Field, and it is accordingly more important that gas be conserved. Yet the proration practice at Oklahoma City is less efficient in conserving gas than the Yates Field practice. Wide open wells make for gas waste. Proration ought at least to conserve gas, and thereby reduce lifting costs, and this is particularly true at Oklahoma City where lifting costs must eventually become very high because of the great depth.

"If wells were equally expensive to drill at Oklahoma City and Yates Field—that is, if the average well in the one field cost the same as in the other—the total drilling costs per barrel of oil produced to date would be nearly four times as much at Oklahoma City as at Yates Field. In reality, wells cost roughly six times as much at Oklahoma City as at Yates Field so that actual costs of drilling per barrel of oil produced to date are more than 20 times larger at Oklahoma City than at Yates Field. When Yates Field had produced only as much oil as Oklahoma City has to date, its drilling costs per barrel were only 4 per cent of the figure for Oklahoma City. In other words, the first 34,000,000 bbls. of oil produced at Oklahoma City cost the producer in drilling costs alone 25 times as much as the first 34,000,000 bbls. at Yates Field cost the producers there.

High Costs, No Outlet

"It is not surprising, under the circumstances, that the small operator at Oklahoma City finds himself pressed for funds to keep up his development. His market outlet, and consequently his income, is restricted, yet his expenses are approximately the same as they would be if he were producing and selling his entire potential production. He has been compelled to borrow money in order to finance his drilling, and now he is crying for an increased outlet so that his income may be augmented to a point that will permit him to carry this indebtedness. No similar situation ever arose at Yates Field. The operators there, large and small, have been able to keep development costs more nearly in step with their current earnings, even under strict proration, largely because they were relieved from drilling more than a minimum number of wells.

"It is true, of course, that the lesser depth of the wells at Yates Field is a potent factor in keeping drilling costs below those at Oklahoma City, but an effective and really useful proration plan at Oklahoma City should have eliminated three-fourths of the drilling already done and deferred the completion of the superfluous wells until they were needed to maintain production and until they could be financed out of income. Such a plan would have held the expenditures of the average operator at Oklahoma City to about 25 per cent of their current total and would have diminished his troubles correspondingly.

"It may be argued that the reduction in cost which has been suggested here is not in reality an actual reduction of costs, but only a deferment of expenditure. Some day, no doubt, additional wells must be drilled in Yates Field. Even if this be true, the advantage that results from simple deferment in times of stress and overproduction is so attractive that most operators will be glad to seize upon it, once they recognize it fully. But there is certainly an actual reduction in ultimate cost as well as a deferment in expenditure to come from intelligent proration. Intelligent proration—to repeat—is a step in the direction of unit operation, and in the light of our present knowledge and experience unit operation constitutes the last word in efficient and low cost production of oil.

"The other side of proration is, therefore, that its advantages outweigh its inconveniences so greatly that small operators as well as large corporations must come at length to embrace it."

SOME DEEP WELL PRODUCTION PROBLEMS

(Continued from Page 33)

wells with low fluid levels are being handled in a satisfactory manner in the Oklahoma City Field.

The Indian Territory Illuminating Oil Co. has tubed its No. 9 Nettie Emerson in Section 30 in the sand area with about 6,000 feet of 2½-inch tubing and is flowing it by gas-lift. In this well, which has a total depth of about 6,450 feet, the fluid stands about 5,000 feet below the surface, that is the depth of fluid in the hole is about 1,450 feet and the tubing string is submerged in it about 1,000 feet.

It has been found that this well is not hard to kick off for it requires only 500 pounds to start it flowing and the pressure then drops back to about 400 pounds. The well is flowed through the 2½-inch string and is cased with 7-inch outside diameter casing.

This is a notable exception in gas-lift production and the results obtained over a long period will be watched with interest, but owing to the proration conditions under which this and other wells are permitted to produce data are not accumulated as rapidly as some engineers would like so the test may be said to be still in an experimental stage but indications are that no particular trouble will be experienced in producing the well under the gas-lift method.

Like other companies producing with the gas-lift in the lime area the Indian Territory Illuminating Oil Co. finds that the fluid level in those wells is high, reaching within 2,000 to 3,000 feet of the surface and consisting largely of water. For this reason it has been found that wells in the Arbuckle lime will make from 1,000 bbls., minimum, to 8,000 bbls., maximum, of water per day with approximately 300 bbls. of oil to the average well. The average water produced is between 3,500 and 4,000 bbls. per day.

In the sand wells where there is a much lower fluid level it is customary to run from 4,000 to 5,000 feet of tubing and secure a submergency of about 1,600 feet. This practice is comparable with that of Seminole area where the wells were about 4,200 feet deep so the methods followed there are being used in the Oklahoma City Pool on wells of this type.

Centrifugal Pump to Be Tried

The Corporation Commission has made a special ruling that will permit the Indian Territory Illuminating Oil Co. to install one of the Reda submergible centrifugal pumps inside of the 6⅝-inch casing and at a depth of from 2,000 to 2,500 feet to make a test for 30 days.

It is the purpose of this test to determine whether a pump of this kind is economically practicable for this area and it is understood that the data secured will be made available to all operators in the Oklahoma City Pool at the end of the test period so that discussion of results and recommendations as to its further use may be entered into by all concerned.

This pump was fully described in an article in The Oil and Gas Journal January 9, 1930, on page 36 under the title "Submergible Electric Oil Well Pump." As it has proven in past tests to be a high capacity pump the test will be followed with much interest for it may assist in solving the production problems of the operators in the lime area where large quantities of water must be handled to secure the oil.

Other companies in the lime area have had much the same experience as those described above. On the Prairie-Slick Sarah Hiddleston lease their No. 5 well is being produced with gas-lift. This well has about 3,800 feet of 2½-inch tubing inside the 7-inch outside diameter casing and requires 960 pounds to kick off and 800 pounds flowing pressure. It makes about 6,000 bbls. of water daily with from 700 to 800 bbls. of oil.

Large Tubing to Be Tried Out

On the Skelly Oil Co.'s lease in Section 31 it is proposed to install compressors for gas-lift but instead of using 2½-inch tubing or tapered strings, a flow string of 4-inch tubing will be run inside of the 7-inch outside diameter casing and by this method it is estimated that the horsepower required to recover this oil will be held to a minimum.

Based upon Seminole experience where it was found that pumping gas down inside the 2½-inch tubing and flowing the well between tubing and 5-inch casing secured 250 bbls. of oil with a working pressure of 225 pounds, whereas by introducing the gas between the 5-inch tubing and the casing and flowing up through the 5-inch tubing gave 500 bbls. of oil daily with a working pressure of only 150 pounds.

This Seminole well was tested under every condition and the results obtained by flowing up through the large string of tubing were the most satisfactory for in the last analysis volume of gas and the pressure under which it is used will determine horsepower and the larger flow area around the 4-inch tubing to be installed in Oklahoma City wells will bring about a lowering of working pressure and in this way reduce the amount of initial investment required in the compressor plant.

It is intended to install six 175 horsepower Cooper compressors and one 80 horsepower Bessemer compressor on this lease. Five of the 175 horsepower machines will be of the two-stage type good for a working pressure up to about 400 pounds while one of the 175 horsepower units and the 80 horsepower unit will be of the three-stage type good for a maximum pressure of 2,000 pounds.

The use of the larger size flow strings was also tried out with very satisfactory results in the Panhandle district by the Skelly Oil Co. and it is thought that from these previous operations the use of the 4-inch string in Oklahoma City deep production is justified.

Pumping to Be Tried

As it was found in Seminole area there is a limit to the economical efficiency of gas-lift production so many of the engineers are already beginning to give serious consideration to methods of pumping these wells when that time arrives. In fact one of the companies operating there on an extensive scale made very careful estimates of pumping requirements at the time their wells were drilled and provided rig fronts suitable for beam pumping when the locations were first made and by so doing have saved considerable expense in future installation.

With the mass of data accumulated from dynamometer tests in many fields and from experiences in deep wells pumped in California and elsewhere it is not considered difficult at this time to pump these Oklahoma City wells when the time arrives that this method of production must be resorted to in securing the oil.

It is admitted by those familiar with the field that sand conditions in different parts of the field vary over quite a wide range and the present method of prorated producing is not giving what might be considered ideal results in all instances, but the fact is established that it has been much better than would have existed under open flow methods for pressure on the sands have been maintained in most areas and this will be of material benefit later in getting the maximum amount of oil from these deep zones of production.

If wells had been permitted to flow wide open without regard to the effect upon neighboring wells there are places where water encroachment would have been much faster than it has been under prorated conditions. This is beneficial to all for in the last analysis the gas energy must be conserved to be used in moving the oil to the wells, and in some areas where wells have been produced as gas wells it is now found that the rock pressures in adjacent territories has fallen very rapidly as compared with pressures in other portions of the field where gas wells did not exist.

The gas produced from these wells has been condensed to liquid and has returned a revenue to the owners of such leases and as such this method of production may be to some extent justified but if the whole field had been operated on the open flow method with each operator striving to secure the maximum of production in the minimum of time water coning would have followed quickly and much oil would be left in the sands never to be recovered.

Production Problems Will Be Solved

The experience thus far gained in producing wells by mechanical means in the Oklahoma City Field indicates that the engineers in charge of these operations will handle their problems as they are presented in such a way as to get the best results, for the experience gained in Semniole are still fresh in the minds of many of them and they will be used to the best advantages in the Oklahoma City Pool.

While there is much discussion as to the power required to pump such deep wells and estimates running as high as 80 and even 150 horsepower have been made in preliminary surveys, it is thought by well informed production men that the power requirements will not be excessive for here again past experience in pumping will be brought into play and by taking careful dynamometer readings and using well designed counterbalances, with beam strokes proportions in length and time to the movement of the traveling valve in the working barrel the

oil will be lifted with a minimum input of power.

A new phase of production is about to begin with the issuance of an order by the Corporation Commission that will shut down all wells in the Oklahoma City Field that have produced their prorated amounts or have overproduced until such time as other wells that have underproduced have had opportunity to catch up.

This will bring about a new cycle of producing and areas that have not as yet been drained in amounts equal to adjacent zones will have opportunity to recover their proportion of the oil and when this has been done there may be further changes in rock pressures in the sands and this may hasten the needs for resorting to gas-lift and even rod pumping methods to secure the oil.

The field now has about 625 wells on production schedule and about 200 more drilling, and with only 50 on gas-lift there will be much more to be done to maintain production, but it is anticipated that the change will be gradual and perhaps in the nature of zones set up by drainage secured under present production methods and as most companies are keeping close checks on all details of production they can anticipate these changes in a large degree and prepare for the new methods of handling the oil in an orderly manner.

It therefore seems that while there has been a lot of discussion and speculation about what is to be done in this deep producing pool, the men on the ground have been quietly at work solving the problems and applying good past experiences to these newer needs and the results are most gratifying, although it is admitted that because of the proration orders in effect as much data as desired has not been obtainable.

GEOLOGY OF GAS FIELDS OF NEW YORK STATE

(Continued from Page 70)

isocarb map for these areas they would be included in favorable territory. In fact, there is probably no part of the State in which favorable structures and geologic sections exist, that metamorphism has been intense enough to condemn the area as possible gas producing territory.

Description of Typical Fields

It is obviously impossible to give a complete description of all of the gas fields of New York. For many of these, sufficient information is not obtainable and in others the data available may not be used. For these reasons a general discussion of the occurrence of natural gas in various types of fields will be presented, rather than a more specific description of local producing areas. For this purpose the natural gas fields of the State have been classified according to the geological horizons from which the gas is obtained as the Chemung Fields, the Genesee, Hamilton and Marcellus shale gas fields, the Oriskany Fields, and the Medina and Trenton Fields.

The production of natural gas from Chemung rocks is practically restricted to Cattaraugus, Allegany and Steuben Counties. Much of the gas comes from the higher parts of anticlinal structures that produce oil lower down the dip. The most notable examples of this mode of accumulation are found in the northern part of the Bradford oil field, which extends across the Pennsylvania line into New York and in the central and northeastern parts of the Richburg Field. In both of these fields the upper part of the sand, in the higher parts of the structure was a gas pay, and during the early period of development yielded much gas. These reserviors are, however, largely depleted at the present time and owing to the great amount of drilling that has been done in this area, it is very unlikely that fields of similar character will be discovered in the future.

Certain Chemung gas fields produce very little oil, but the gas in fields of this character has almost always accumulated up the dip and is partially or entirely surrounded by areas in which the sand contains salt water. In some of these fields the producing horizons are so lenticular that definite gravitational control of accumulation is not very evident, but in the majority of them a well defined gas-water contact exists.

Most of the producing horizons belong to the Richburg group of sands, which occur near the base of the Chemung formation. Many of these sands are very lenticular and some of them may be of an estaurine origin. They represent the shore phases of lower Chemung deposition during the earlier transgressions and oscillations of the sea.

The gas fields producing from the middle Devonian shales have a rather wide distribution throughout western and central New York. The gas generally occurs at rather shallow depths and has accumulated in the openings formed by joints, and in the sandy members of the formations. The reservoirs must be of rather restricted capacity for although the initial productions of some of the wells are large, they decline rapidly, and usually within a short time they produce only enough gas to supply the requirements of one or two dwelling houses. Most of the shale gas fields occur along structural terraces or along anticlines where there has been sufficient relief of compressional forces to open the joint planes in the rocks. The gas undoubtedly originates in the bituminous beds from which it is produced, and except in areas where the strata are rather highly disturbed there has probably been very little migration.

The only gas field of any consequence producing from the Oriskany sandstone is the Tyrone Field in Schuyler County. At Tyrone gas has accumulated at the top of a well defined and almost symmetrical dome, and the gas reservoir is unquestionably surrounded by salt water under high pressure. The limits of the field have not yet been defined, but it now seems probable that it will extend over a much larger area than was originally anticipated. The rock pressure has been almost normal and the initial open flows of the wells completed have been from 2,500,000 to 11,000,000 feet per day. The sand, even in the center of the field, seems to be very irregular in porosity, and it would not be surprising to find dry holes, due to tight sand, surrounded by producing wells.

Natural gas accumulations in the Oriskany will undoubtedly be restricted to the higher parts of closed domes and it is utterly futile to expect gas fields in the synclines.

The larger natural gas fields of New York, producing from the Medina sand, are restricted to the western part of the State. Small wells have been drilled in Ontario and Seneca Counties and farther east some Medina gas is produced in the Trenton fields of Oswego and Oneida Counties.

The occurrence of natural gas in the Medina seems to depend upon two important factors: Sufficient porosity and interconnection of pore space in the reservoir rock; that is, capacity to hold gas; and, enough structural deformation in the areas where favorable reservoir conditions exist to allow for the migration of gas from the underlying source beds. It is the writer's opinion that the gas now produced from the Medina originated in the Ordovician, from which it migrated up fracture and joint planes to its present position. Much gas has been produced from the Medina north of the outcrop of possible middle Devonian source beds, and although these beds probably extended much farther north during past geological time, the possibility of an upward migration seems more logical than a downward migration. Further evidence in favor of this theory is found in the Oswego County fields, which will be described in following paragraphs.

Although structural deformation is not always evident in all Medina producing fields, the ones with which the writer is most familiar are all located on or directly above a structural terrace or are associated with an area of fractured or otherwise disturbed strata. Fracturing of some sort seems to be essential in order that migration might take place and although the zone of fracturing may not be located directly in the area covered by the field it is generally very closely associated with it. The best examples of these effects are seen in the fractured and deformed zones along Lake Erie near Silver Creek and along Cattaraugus Creek, and the structural terraces east and south of Tonawanda, in Aurora and Colden Townships in Erie County, in Darien Township in Genesee County, and in Bennington Township in Wyoming County. All of these areas contain important gas fields. In the Aurora Field definite evidence of fracture zones extending through the producing horizon has been found. The rock pressure of certain closed in wells, situated almost a mile from producing gas wells, has declined almost identically with the normal decline observed at the producing wells. After examining the outcrop of the Medina sands, it is almost inconceivable that they are sufficiently permeable to allow for a corresponding decline in pressure of wells so widely separated. The only logical inference is that these wells are connected in some way by fracture zones.

Practically all of the Medina gas comes from the lower member of the Albion formation, the Whirlpool sandstone. The upper Thorold member and the middle red member, although occasionally containing some gas are apparently too tightly cemented in most areas to serve as reservoir rocks. The one important except is the Pavilion Field in southeastern Genesee County which produced from the red Medina.

The areal extent of the Whirlpool sandstone has been reasonably well defined and beyond the limits of its occurrence there is small possibility of discovering Medina fields of any consequence. It is also rather interesting to note that below a depth of approximately 4,000 feet the Medina has never proven to be very productive. This is attributed to the fact that at greater depths the weight of the overlying sediments has been sufficient to keep fracture zones and joint planes closed, and has therefore prevented the migration of gas from the source beds.

The initial production of wells in the Medina sand depends upon the thickness and permeability of the pay, which is a most variable factor. The outlines of the fields do not conform to any particular pattern, but in general they seem to trend in a northeasterly direction which is the direction of the strike of the terraces and fracture zones previously referred to.

The most desirable prospecting areas for Medina gas are naturally where evidences of some deformation is apparent in the surface rocks, and where the records of previous wells in adjoining areas indicate the presence of a porous Whirlpool sand body.

The occurrence of gas in the Trenton beds has been previously described. In Oswego and Oneida Counties there seems to be no relation between gas accumulation and structure. The gas occurs along bedding planes and in reservoir rocks of low permeability. In certain parts of this area gas is also obtained from the Medina beds and here there is definite evidence that the gas originates in the lower Ordovician beds. The Medina seems to be only gas producing where the rocks are sufficiently fractured and otherwise disturbed to permit an upward gas migration. The lack of organic material in the Medina beds, in itself, is almost conclusive proof of a migration of gas from other sources.

Conclusion

In summary, it may be stated that the State of New York must soon look for new fields to maintain the present-day production. Production may be maintained from the present developed and proven areas of the Medina and Chemung Fields for sometime to come, but it will eventually decline and there are no immediate prospects of large new fields producing from these formations. There are certain areas that still possess rather attractive Medina possibilities but in general the Medina gas fields will be restricted to the region underlain by the Whirlpool sandstone. In this region, many wells have already been drilled but in the present untested area there may still be other fields of the importance of Perrysburg, Colden and Aurora.

The most promising areas for future gas fields are in the central and eastern parts of the State. In these regions other Oriskany fields will likely be discovered and in addition certain faulted structures may yield considerable oil and gas from the Onondaga. The sandstones of the Hamilton and the Clinton have never been tested and they may prove to be prolific sources of gas.

Although the greater drilling depths required to reach the Trenton limestone will prevent the active testing of this formation for some years to come, the possibilities of obtaining gas from it should not be disregarded. The fact that it is gas-bearing near the outcrop is decidedly encouraging.

The large number of dry holes that have already been drilled in central New York clearly indicates the hazards of exploratory drilling in this region. The utter futility of attempting wildcat development in New York without careful geological investigation should be quite evident. It may well be emphasized again, that geological studies must not be confined to a study of structure alone, for palaeogeographic investigations covering the position and areal extent of the reservoir rocks are of equal importance.

REVERSAL OF NORMAL WATER INVASION

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zone, to override younger strata. In places, upturned Paso Robles and Etchegoin measures of the Pliocene are exposed in vertical position. In other portions of the field, the structure is masked by erosion or appears as an overturned fold. In still other portions of the field the overthrust is evident only in the well logs, a considerable thickness of brown shale of the Miocene being drilled through before encountering the younger measures of the Pliocene which contained the oil zone. A complicated water problem is naturally expected. A study of the field from logs and cross sections, fluid levels and points of water invasion, show that there is no one water-bearing stratum that is continuous. While the field is structurally a unit, the occurrence of the water was more or less local, with different areas presenting apparently unrelated and independent water problems.

As the production of the field fell away from the initial flush production, a serious water problem was evident to all operators, and as the water-oil ratio increased, more and more heroic measures were taken to handle the fluid volume and keep the water table down to where (at least certain) wells in the field were able to produce at all. During this period of operation, compressors were installed and many wells blown by air. For a period of five years the field was producing not less than 1,000,000 bbls. of water a month.

Peak Passed

Some time during this period of excessive water production, a peak was passed, the fluid volume began to decline and the water table to sag away. After some years of operation, there was not enough water in the wells or sufficient submergence to make compressor operation practicable, and they were discontinued. Then followed a period of rapid pumping which carried the descending curve of fluid volume across another period of its history. This in turn followed by slowing down the pumping action and there are now being installed in the field numerous slow motion pumping units of four, five and six strokes a minute.

In a number of the wells that were once heavy water producers, water almost entirely disappeared and throughout the water producing area of the field, fluid levels have dropped over 200 feet. Some few wells with bad casing can no longer be pumped as the fluid levels have dropped below the bad pipe.

The explanation of this reversal in the graph of water invasion is in part simple, because so unique and in part difficult because determined by largely unknown factors. The simple part of the explanation is in the disappearance of the fresh and sulphur water from the wells.

As the Santa Maria Valley held the

only substantial fresh water suitable for domestic purposes in the Southwest foothills, it was early entered by the Chanslor-Canfield Midway Oil Co., Associated Oil Co. and the Pacific Oil Co. for their fresh water supply. In a few years, the spring at the lower lip of the valley ceased to flow, then shallow wells had to be deepened and more wells drilled to obtain a satisfactory supply. At the present time, good producers have to be 500 feet deep for sufficient submergence for heavy production. When pumping is stopped, the water table will rise to 110 feet from the surface. A comparison of water production and rainfall figures show that the basin is slowly but surely being emptied. It was natural that with the supply of surface seepage removed, the top waters, fresh and sulphur, would become depleted. This has taken place. Hence the reversal in the water curve.

Bottom Water

Just why the bottom salt water should become depleted is not clear. It is possible that only a certain head has been removed, this covering the salt water fluid table in the wells and that at somewhere near its present depth the volume would remain unaffected and the table unchanged over a long period of operation. It is possible that the faulting referred to above has in some way limited the area of conate water connected with the producing area, and that in time it may be completely exhausted. It is also possible that its rate of advance is slow, or its head has been overbalanced by the rate of production and would recover if operations were discontinued.

The fact remains that the curve of water production, after starting far below that of the oil and ascending far above it, has subscribed an arch; is now well over on the descent and is again about to cross the oil curve on its way apparently to disappearance.

To present chronologically the subject matter of the text, the state of water invasion of the McKittrick Field for the years 1915, 1921, 1923 and 1930 are cited. In 1915, the field after approximately 15 years of production was near the close of its development period. This is the first year in which reliable data was available for any considerable portion of the field.

In 1915 the heavily watered area was small and in isolated spots. The area of very small water content was also small. As a whole, the field was neither dry nor drowned.

In 1921, six years later, there was a pronounced change. The large water producing wells had taken the whole northeast (deeper) portion of the field and the area of light water production was more heavily watered. Between 1915 and 1921 there was pronounced water invasion.

The year 1923 showed a change in the other direction. The heavily watered area was more restricted. While the whole field showed watered areas, less water was produced.

Following a lapse of seven years from 1923, the year 1930 shows striking changes. There is no large continuous area of heavy water production. Conditions are similar to those of 1915, 15 years before. Throughout the whole water producing area of the field the water volume has declined. This is confirmed as shown above by operating conditions in the field. Compressors have all disappeared, not because they accelerated invasion, but because of insufficient submergence. Only a few long stroke, rapid moving pumps are left in the remaining badly watered spots. Fluid levels have dropped over 200 feet.

The future of the McKittrick Field will depend solely on the behavior of the bottom and edge salt water. From now on, the field should take its place and perform in the normal manner of an oil field with all top and upper waters eliminated.

R. A. GRIFFITH, SINCLAIR OIL CO. PRESIDENT, DIES

(Continued from Page 66)

be as rich in oil as other quarter sections for which a million or more was paid at Osage auction sales. He was a progressive operator and the company kept apace with the latest production methods.

Mr. Griffith and his younger brother, Charles E. Griffith, had for many years been partners in a firm of drilling contractors, Charles E. Griffith being the active partner in the concern. They operated together in the Eastern fields before coming to the Mid-Continent, where the partnership was carried on up to the time of the elder brother's death.

Personally "Berry" Griffith was one of the most popular of men. He had an immense circle of friends and admirers, extending from business men of high degree to workmen in the field. This was attested by the large number of men ranging from veteran oil men who had known him as a boy, down to young Sinclair employees just breaking into the business, who attended the funeral services held in the large Boston Avenue Methodist Episcopal Church in Tulsa, many of whom followed him to his last resting place.

The funeral was held Tuesday afternoon in the presence of friends that overflowed the church. The Rev. Dr. C. M. Reeves, pastor, assisted by the Rev. Dr. C. W. Kerr, pastor of the First Presbyterian church, officiated. Interment was in Rose Hill cemetery.

Mrs. Griffith and son Richard A. Griffith, age 17, survive together with two brothers and one sister, W. B. Griffith of Bradford; Charles E. Griffith of Tulsa; and Mrs. Joseph H. Bovaird of Bradford, all of whom were present at the funeral.

PANHANDLE EASTERN

Consumation of the deal whereby Columbia Oil & Gas Corp., an affiliate of Columbia Gas & Electric, has acquired a 50 per cent interest in the Panhandle Eastern Pipe Line Co. is announced.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 64)

Danciger O. & R. Co.'s No. 1 McLaughlin, 330 ft. S and E, NW, Sec. 33, Blk. B-2, H.&G.N. Sur. ..... T.D. 2,921 ft; spraying 150 bbls. daily.
Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Rotary rig.
Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N, 884 ft. W of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Location.
Dulaney & Word's No. 1 Morse, 330 ft. S and W, Sec. 18, Blk. A-9, H.&G.N. Sur. ..... Drlg. 400 ft.
Empire G. & F. Co.'s No. 2-B Archer, 330 ft. S and E, SW, Sec. 139, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,950 ft.
Empire G. & F. Co.'s No. 1 Bell, 1,320 ft. S, 1,660 ft. E, SW, Sec. 111, Blk. 3, I.&G.N. Sur. ..... Rigging up.
Empire G. & F. Co.'s No. 1 Cantrell, 330 ft. S and E, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,830 ft.
Empire G. & F. Co.'s No. 1 Froshier, 1,320 ft. S and E, Sec. 177, Blk. 3, I.&G.N. Sur. ..... Drlg. 210 ft.
Empire G. & F. Co.'s No. 1 Sullivan, 330 ft. NW of E 64 ac. of W 104 ac. of S 264 ac., of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... T.D. 2,420 ft; standardizing.
Empire G. & F. Co.'s No. 2 Sailor, 330 ft. N and W, NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,000 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,765 ft.
Magnolia Pet. Co.'s No. 1 Latham, 876 ft. N, 150 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,350 ft.
Magnolia Pet. Co.'s No. 2 Heithoit, 150 ft. S, 1,156 ft. W, SE, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Location.
Magnolia Pet. Co.'s No. 2 Latham, 175 ft. N, 150 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Drlg. 435 ft.
Magnolia Pet. Co.'s No. 1 Morse, 330 ft. N and W, S½ NE, Sec. 5, Blk. 26, H.&G.N. Sur. ..... Rotary rig on ground.
Magnolia Pet. Co.'s No. 2 Sailor, 330 ft. S and W, E½ NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Building rig.
Midwest Explin. Co.'s No. 1-B Taylor, 660 ft. N and W, Sec. 7, Blk. H, A.W. Willard Sur. ..... Drlg. 1,850 ft.
Midgray Oil Co.'s No. 1 McCullough, 267 ft. N, 150 ft. E of 246.9 ac. in Sec. 153, Blk. 3, I.&G.N. Sur. ..... C.O. 1,800 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Fishing for bit; T.D. 2,620 ft.
North American O. & G. Co.'s No. 1 Duncan, 810 ft. N, 660 ft. E, E½ SW, Sec. 135, Blk. 3, I.&G.N. Sur. ..... Rig on ground.
Operators R. & P. Co.'s No. 1 Arnold, 330 ft. S and E, E½ NE, Sec. 149, Blk. 3, I.&G.N. Sur. ..... Standardizing 3,143 ft.
Phillips Pet. Co.'s No. 1 Barrett, 330 ft. S, 150 ft. W, W½, N 56 ac., Sec. 1,360, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,660 ft.
Phillips Pet. Co.'s No. 2 Barrett, 130 ft. N, 465 ft. W, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Rigging up.
Prairie O. & G. Co.'s No. 1 Reynolds, 330 ft. S and E, NW, Sec. 84, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,455 ft.
W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Estimated 4,000,000 ft. gas 2,875 ft; fishing 2,975 ft.
Shamrock O. & G. Co.'s No. 1 Reynolds, 330 ft. N and E, SE SE, Sec. 84, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,865 ft; 25,000,000 ft. gas 2,810-25 ft.
Skelly Oil Co.'s No. 1 Vicars, 330 ft. N and E, W½, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,150 ft.
Skelly Oil Co.'s No. 1 Heithoit, 150 ft. N, 3,806 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,140 ft.
Skelly Oil Co.'s No. 2 Vicars, 330 ft. N and W, SW, Sec. 127, Blk. 3, I.&G.N. Sur. ..... T.D. 2,580 ft; U.R. 8-in. csg.
Smith's No. 1 Morse, 200 ft. S, 330 ft. W, Sec. 6, Blk. 26, H.&G.N. Sur. ..... 3,000,000 ft. gas 2,150-70 ft; S.D. 2,892 ft; 400 ft. oil in hole.
Southern Pet. Explin. Co.'s No. 1 Baird, 330 ft. S and W, NW, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,875 ft.
Southern States Gas Co.'s No. 1 Case, 330 ft. N and W, E½, Sec. 181, Blk. B-2, H.&G.N. Sur. ..... Cellar.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N¼ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 3 Brown, 150 ft. S, 330 ft. W of 247-ac. lease, Sec. 137, Blk. 3, I.&G.N. Sur. ..... T.D. 1,165 ft; set 10-in. csg; standardizing.

HUTCHINSON COUNTY

Dixon Creek Oil Co.'s No. 1 Johnson Bros., 330 ft. N and W of E 60 ac. of NW 100 ac., Sec. 1, Blk. X03, H.&O.B. Sur. ..... Drlg. 2,440 ft.
Great Plains O. & G. Co.'s No. 1 Sanford, C of S 160 ac. of N 320 ac., Sec. 87, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,600 ft.
Huber Prod. Co.'s No. 1 Johnson Bros., 330 ft. N and E, E½ NW, Sec. 30, Blk. Y, A.&B. Sur. ..... Drlg. 2,550 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Pure), 330 ft. S and E of E 240 ac., Sec. 29, Blk. Y, A.&B. Sur. ..... Drlg. 2,900 ft.
Texas Interstate P. L. Co.'s No. 1 Bivins, C E½ of N 160 ac., Sec. 91, Blk. 6, H.&T.C. Sur. ..... Cellar.
Lanier et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Spudded.
Phillips Pet. Co.'s No. 1-A Pease, 330 ft. S, 330 ft. E, Sec. 9½, Z. E. Collier Sur. ..... T.D. 3,100 ft; T.P. 3,075 ft; S.D. for storage.
Prairie O. & G. Co.'s No. 1 Read, C SW, J. M. McDonald Sur. ..... Drlg. 2,780 ft.
Sinclair O. & G. Co.'s No. 1-C Johnson Bros., 330 ft. N and W, NE, Sec. 32, Blk. Y, A.&B. Sur. ..... T.D. 2,540 ft; U.R. 8-in. csg.
Sinclair O. & G. Co.'s No. 1-A Johnson Bros., 330 ft. N, 430 ft. E, NW, Sec. 32, Blk. Y, A.&B. Sur. ..... Rig.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.O. 3,065 ft. and 3,108-10 ft; S.D. 3,110 ft.
Spurlock et al's No. 1-A Christian, 440 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33, Blk. Y ..... 60,000,000 ft. gas; S.D. 3,219 ft; shot 140 qts. 3,150-3,320 ft; C.O.
Stansylvanian Oil Co.'s No. 1 Whittenburg, 330 ft. S and W, Sec. 129, Blk. Z, E.L.R.R. Sur. ..... S.D. 3,075 ft.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.G. 3,760 ft; S.D. 4,142 ft.
Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Lowering 5 3/16-in. csg; T.D. 5,-903 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; S. D. 4,-167 ft.

MOORE COUNTY

Dana O. & G. Co.'s No. 1 R. Viey, 330 ft. N, 330 ft. E, W½ SE, Sec. 135, T.&N.O. Sur. ..... Location.
Delmar Oil Co.'s No. 1-A Jones, 330 ft. N, 990 ft. E, NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... Rigging up standard tools 2,-618 ft.
Home Gas Co.'s No. 1 Reeder, 330 ft. N and W, N½ E½ NE, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... S.D. 3,135 ft; set 6-in. csg.
Morton et al's No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Shamrock O. & G. Co.'s No. 1 Sullivan, 330 ft. S and E, NE, Sec. 139, Blk. 3-T, T.&N.O. Sur. ..... Rotary rig.
Sunray Oil Co.'s No. 1 C. R. Jones, 330 ft. E, 330 ft. S, W½ SW, Sec. 164, T.&N.O. Sur. ..... T.D. 2,528 ft; to deepen.
Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Shamrock O. & G. Co.'s No. 1 Coffee, 330 ft. E, 330 ft. N, E 160-ac. tr., Sec. 355, H.&T.C. Sur. ..... T.D. 3,287 ft; set 8-in. csg.
Texas Interstate P. L. Co.'s No. 1 Sneed, Jr., C NE, Sec. 48, Blk. 6-T, T.&N.O. Sur. ..... Drlg. 2,140 ft.
Texas Interstate P. L. Co.'s No. 1 Sneed, Jr., C NE, Sec. 6, Blk. B-10, E.L.&R.R. Sur. ..... Spudded.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... Rotary rig.
Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ..... S.D. 630 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1 McBride estate "A," 4,950 ft. S, 330 ft. W, E½ S½, Sec. 98, Blk. 46, H.&T.C. Sur. ..... S.D. 2,000 ft.
Texas Interstate P. L. Co.'s No. 1 Rockwell, C N½ of S½, Sec. 102, Blk. 46, H.&T.C. Sur. ..... Location.

RANDALL COUNTY

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 ... S.D. 1,250 ft.

WHEELER COUNTY

Guernsey Oil Co. et al's No. 1 Sewell, 320 ft. N and E, Sec. 38, Blk. 13, H.&G.N. Sur. ..... Drlg. 490 ft.
McGee et al's No. 1 Jolly, C NE, Sec. 15, Blk. A-8, H. &G.N. Sur. ..... T.D. 2,030 ft.
Mid-Kansas O. & G. Co.'s No. 1 Harvey, 660 ft. S and W, NE, Sec. 56, Blk. 23, H.&G.N. Sur. ..... Location.
Wischkamper et al's No. 1 Kiser, 330 ft. N and E of SW, Sec. 33, Blk. 17, H.&G.N. Sur. ..... Drlg. 2,280 ft.
Woodley et al's No. 1 Sloss & Admire, 660 ft. N, 330 ft. E, Sec. 47, Blk. 13, H.&G.N. Sur. ..... S.D. 1,325 ft.
Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ..... S.D.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 63)

Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,750 ft.; flowed 110 bbls. on July 12, shut in for storage.

The Texas Company's No. 9 Connell, 330 ft. from N and 440 ft. from W of SE cor. Sec. 1, Public School Land .. Running 6⅝-in. casing; total depth 3,290 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Section 46, J. M. Day Sur. ..... Shut down 3,089 ft.

FISHER COUNTY

Condor Pet. Co.'s No. 1 Wilson, 330 ft. from N and 1,200 ft. from W, Sec. 6, W. E. Richardson Sur. ..... Drlg. 200 ft.

Cranfill & Reynolds' No. 2 Flannigan, 330 ft. from S and E of W half of Section 200, B.B.B.&C. Sur. ..... 2,500 ft. oil in hole from 3,090-96 ft.; shut down 3,130 ft.; plugged back to 3,124 ft.; no results from 10-qt. shot.

Cranfill & Reynolds' No. 3 Willingham, 330 ft. from S and E of Sec. 307, B.B.B.&C. Sur. ..... Running 6⅝-in. casing 3,082 ft.

The Texas Company's No. 2-A Stephens, 330 ft. from S and E, Sec. 79, Blk. 1, H.&T.C. Sur. ..... Shut down 260 ft.

The Texas Company's No. 1-B Teagarden, 1,990 ft. from S and 440 ft. from E, Sec. 8, W. E. Richardson Sur... Set 12½-in. casing 900 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 2 Stokes, 330 ft. from N and 990 ft. from E of Sec. 31, Blk. 5, G.H.&H. Sur. ..... Total depth 3,003 ft.; will plug and abandon.

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

GLASSCOCK COUNTY

F. H. E. Oil Co.'s No. 1 Meek, 1,650 ft. N and E parallel to section lines of SW cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ..... Rotary rig.

Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ... Total depth 2,956 ft.; shut down.

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor. Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. ... Shut down 660 ft.

HOWARD COUNTY

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor. Sec. 129, Blk. 29, W.&N.W. Sur. ..... Sulphur water 1,433-46 ft.; shut down 1,456 ft.

G. F. Getty's No. 1 Snyder, Sec. 27, Blk. 10, Twp. 1s, SW cor. of NE of NE ..... Drlg. 1,930 ft.

Greene O. & R. Co. et al's No. 1 Denman, 330 ft. from N and W of E half of NE, Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. ..... Drlg. 2,726 ft.; top pay 2,615-2,630 ft.; increase 2,666-2,700 ft.; half full oil.

Magnolia Pet. Co.'s No. 1 Kelley Roberts, 330 ft. S and E, Sec. 112, Blk. 29, W.&N.W. Sur. ..... Location.

Merriwether's No. 1 Smith, 150 ft. from S, 2,400 ft. from W, Sec. 45, Blk. 33 ..... 2,000 ft. water in hole; shut down 3,270 ft.; 2,000 ft. sulphur water in hole; will abandon.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Shut down 261 ft.

HUDSPETH COUNTY

Theison's No. 1 University, 2,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Shut down 3,155 ft.

IRION COUNTY

Bristow et al's No. 1 Nutt, 180 ft. from NW of SW of NW Sec. 6, Gonzales County School Land ..... Total depth 1,735 ft.; plugged back to 1,458 ft.

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E, Sec. 3, Blk. 3, H.&T.C. Sur. ..... Drlg. 260 ft.

Cromwell et al's No. 1 Tankersley, 150 ft. from N and 210 ft. from W of E half of Sec. 1,320, G.C.&S.F. Sur... Shut down 1,712 ft.; show oil 1,621-25 ft.

Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Drlg. 1,314 ft.; oil sand 1,220-25 ft.; filled up 200 ft. in 12 hours.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County ..... Shut down 8,900 ft.; may drill deeper.

Williams & Williams' No. 1 Noelke, 200 ft. from N and 1,020 ft. from E, Sec. 8, City of San Antonio Sur. ..... Shut down 1,995 ft.

Webb et al's No. 1 Nutt, 150 ft. from S and 116 ft. from W of Blk. 5, Gonzales County School Land ..... Shut down 100 ft.

F. F. Webb's No. 1 W. H. Williams, 200 ft. from E and 750 ft. from S line, SW of NE Sec. 10, Gonzales County School Land ..... Shut down 100 ft.

JONES COUNTY

McBest et al's No. 1 Roberts ..... Total depth 1,000 ft.

Pope et al's No. 1 Swann, 2,023 ft. from S and 400 ft. from E of I. Miley Sur. No. 381 ..... Drlg. 2,550 ft.

LOVING COUNTY

Arkansas Fuel Oil Co.'s No. 1 Dean, 990 ft. from NE and 2,310 ft. from SE, Sec. 84, Blk. 1, W.&N.W. Sur. ..... Drlg. 3,195 ft.

Eppenauer et al's No. 1 Allen, 2,310 ft. from NE and NW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,510 ft.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.

Independent O. & G. Co.'s No. 2 Wheat, 990 ft. from NW and 330 ft. from SW, Sec. 85, Blk. 1, W.&N.W. Sur. ... Drlg. 1,740 ft.

Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Spudded 140 ft.; shut down.

Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, Blk. 33, H.&T.C. Sur. ..... Rigged up and shut down.

Miller et al's No. 1 Chapman, 225 ft. from NW and 286 ft. from SW line, Sec. 71, Blk. 1, W.&N.W. Sur. ..... Shut down 3,800 ft.

Rush et al's No. 1 Wheat, 330 ft. from NW and SW, Sec. 77, Blk. 1, W.&N.W. Sur. ..... Cellar.

Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W, Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Building rig.

California Co.'s No. 5 Reagan & McElwain, 990 ft. from NW and 330 ft. from NE of Sec. 84, Blk. 1, W.&N.W. Sur. ..... Drlg. 520 ft.

California Co.'s No. 6 Reagan & McElwain, 330 ft. from SW and 1,650 ft. from SE, Sec. 84, Blk. 1, W.&N.W. Sur. ..... Rig up.

Lee O. White et al's No. 1 Russell et al, 320 ft. from NW and 3,200 ft. from SW, Sec. 80, Blk. 1, W.&N.W. Sur. ..... Flowing 275 bbls. per day, total depth 4,218 ft.

MENARD COUNTY

Barnett et al's No. 3 Callan City Co., 330 ft. from S and W, Sec. 1, B.S.&F. Sur. ..... Shut down 1,305 ft.

Barnett et al's No. 4 Callan City Co., 1,200 ft. from S and 2,200 ft. from W, Sec. 1, B.S.&F. Sur. ..... Machine.

Panhandle Ref. Co.'s No. 2 Eckhart, 1,320 ft. from W and 1,320 ft. from S of Sec. 10, Blk. 2, T.W.N.G. Sur. ..... 500,000 ft. gas with show oil 2,945 ft.; shut down 3,200 ft.; to plug back to 2,955 ft. to save gas.

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.&R.R. Sur. ..... Shut down 2,490 ft.

MIDLAND COUNTY

Kerwin et al's No. 1 Mathen, 2,310 ft. from N and 335 ft. from W line, Sec. 40, W. L. Gray Sur. ..... Drlg. 750 ft.

MITCHELL COUNTY

Morrison et al's No. 2 Morrison, 2,310 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. Sur. ..... Shut down 3,112 ft.; top pay 3,038-75 ft.; shot 270 qts. 3,020-92 ft.; swabbed 40 bbls. in 24 hours.

Morrison et al's No. 1 Poe et al, 660 ft. S and 1,980 ft. W, parallel to section lines of NE cor. Sec. 8, Blk. 27, T.&P. Sur. ..... Spudded 10 ft. and shut down.

PECOS COUNTY

Bell et al's No. 1 Eaton, 2,310 ft. from NE and 990 ft. from SE, Sec. 33, Blk. 2, H.&T.C. Sur. ..... Location.

Bell et al's No. 1 Schaff & Blackman, 2,310 ft. NE and 330 ft. NW of E cor. Sec. 37, Blk. 3, H.&T.C. Sur., but located in Sec. 38, Blk. 3, H.&T.C. Sur. ..... Fishing 265 ft.

Curry & Eakin's No. 1 Pecos Valley Oil Co., 1,050 ft. from SE and 1,470 ft. from SW, Sec. 36, Blk. 3, H.&T.C. Sur. ..... Shut down 1,629 ft.; top pay 1,577 ft.; flowing 15 bbls. per day.

Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW, Sec. 28, Blk. 3, H.&T.C. Sur. ..... Location.

Dittman's No. 1 Eaton, 2,310 ft. from SW and NW, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Shut down 1,580 ft.; top pay 1,574 ft.; flowing 50 bbls. per day.

Dittman's No. 2 Eaton, 990 ft. from SW and 330 ft. from SE, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Location.

Dittman's No. 1 Eaton, 330 ft. from NE and SE, Sec. 37, Blk. 3, H.&T.C. Sur. ..... Location.

Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ..... Shut down 5,695 ft.

Humble Oil & Ref. Co.'s No. 1-B Thoman, 1,608 ft. from N and 4,062 ft. from E of Sec. 98, Blk. OW, G.C.&S.F. Sur. ..... Drlg. 2,513 ft.

Lewis & Slagel's No. 1 Bell, 330 ft. from N and W of SE Sec. 12, Blk. 30, Twp. 1s, T.&P. Sur. ..... Location.

Lockhart & Co.'s No. 1 University, C NE of SW Sec. 24, Blk. 16 ..... Drlg. 1,925 ft.; show oil 1,780-1,820 ft.

McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.

Messenger et al's No. 1 Butz, 1,830 ft. from NW and 1,170 ft. from SW, Sec. 54, Blk. 10, H.&G.N. Sur. ..... Fishing 1,105 ft.

J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 1,700 ft.

J. D. O'Mara's No. 1 Bennett, Sec. 593, 1,460 ft. from S 150 ft. from E, G.C.&S.F. Sur. ..... Total depth 1,230 ft.; top pay 1,089 ft.; plugged back to 1,185 ft.; will drill deeper.

J. D. O'Mara's No. 1 Streety, S of Sec. 1, W.P. Howard Sur. ..... Shut down 2,210 ft.; fishing.

Oregon Oil Corp.'s No. 2 Yates, 150 ft. from S and W of Sec. 58, Blk. 1, I.&G.N. Sur. ..... Shut down 2,440 ft.

Perren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Fishing 1,765 ft.

Plymouth Oil Co.'s No. 1 Perry, 330 ft. from N and W, Sec. 13, Blk. 194, G.C.&S.F. Sur. ..... Total depth 1,920 ft.; top pay 1,892 ft.; flowing 25 bbs. per day.

R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C. Sur. ..... Spudded and shut down.

Pure Oil Co.'s No. 1 Harrison 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 3,339 ft.

Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ..... Shut down 405 ft.

Side & Side's No. 1 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.C. Sur. ..... Drlg. 2,490 ft.

Schilling & Slaughter's No. 1 Yates, 1,580 ft. N and 150 ft. E of NW cor. Runnels County School Land, but located in Sec. 70, Blk. 1, I.&G.N. Sur. ..... Drlg. 200 ft.

California Co. et al's No. 1 Thomas, 990 ft. from NW and SW, Sec. 31, Blk. 34, H.&T.C. Sur. ..... Location.

The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor. Sec. 9, Blk. 131, T.&St.L. Sur. ..... Shut down 3,504 ft.

Warner's No. 1 Webb, 2,550 ft. from NW and 6,100 ft. from NE of Sec. 311, Abst. 756, C. McGinley Sur. .... Shut down 1,751 ft.

Williams & Moran's No. 1 Heiner Est., 450 ft. from N and 2,490 ft. from W of Sec. 590, G.C.&S.F. Sur. ..... Drlg. 665 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ..... Top pay 8,220 ft.; flowed 3,666 bbls. 24 hours October 23; total depth 8,697 ft.

Big Lake Oil Co.'s No. 5-C University, 625 ft. from S and 900 ft. from W of Sec. 25, Blk. 9 ..... Drlg. 5,927 ft.

Slick Estate et al's No. 1 August, C SE Sec. 1,216, G.C.&S.F. Sur. ..... Location.

Texon O. & L. Co.'s No. 4-B University, 1,130 ft. from N and W of Sec. 26, Blk. 9 ..... Drlg. 4,997 ft.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.

Black & Kink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 50 ..... Top pay 1,820 ft.; shot 15 qts. 1,821-30 ft.; shut down 1,860 ft.

Riggs & Smith's No. 1 Lee Monroe, 2,390 ft. from NE and 330 ft. from NW line, Sec. 34, Blk. 7, H.&L.N. Sur. ..... Shut down 176 ft.

Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from E of Sec. 7, Blk. 5, H.&G.N. Sur. ... Temporarily abandoned.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Shut down 4,415 ft.

California Co.'s No. 1 Kloh & Rumsey, 1,650 ft. from S and E of Sec. 13, Blk. 54, Twp. 4, T.&P. Sur. ..... Shut down 4,077 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ..... Shut down 1,330 ft.

George W. Boyce's No. 1 Lang, 2,310 ft. N, 6,900 ft. E, Sec. 262 ..... Show oil 2,028 ft.; shut down 2,643 ft.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C of NW Sec. 56, Blk. 1, G.H.&S.A. Sur. ..... Fishing 5,577 ft.

Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A. Sur. ..... Shut down 3,960 ft.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Shut down 750 ft.

Westyde et al's No. 1 Meador, 1,320 ft. from S and E of Sec. 661, G.C.&S.F. Sur. ..... Location.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,027 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 320 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ..... Top pay 1,750 ft.; show oil 2,812-55 ft.; shot 150 qts. 3,100-35 ft.; pumped 55 bbls. 24 hrs.; total depth 3,501 ft.

Camp Spring Oil Co.'s No. 1 Strayhorn, 330 ft. from S and 1,980 ft. from W of Sec. 154, Blk. 3, H.&G.N. Sur. ..... Cem. cave 875 ft.

I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,970 ft.

Mid-Kansas O. & G. Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ..... Drlg. 4,300 ft.

. . . give dependable regulation of suction and discharge pressures.

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Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ..... Drlg. 200 ft.

STERLING COUNTY

Beesley et al's No. 1 Brown, 2,940 ft. N and 300 ft. W of SW cor. Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 21, Twp. 4s, T.&P. Sur. ..... Running 10-in. casing total depth 356 ft.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Wilson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ..... Location.

TAYLOR COUNTY

Adams et al's No. 2 Lowe, 150 ft. from N and 750 ft. from W, Sec. 19, Guadalupe County School Land ..... Drlg. 1,700 ft.
Eastland Oil Co. et al's No. 2 Hunter, 3,418 ft. from S and 2,174 ft. from E of William R. Ellis Sur. ..... Drlg. 310 ft.
Gibson & Johnson's No. 1 Bingham, 330 ft. N and E of SW cor. their 270.8-acre tract, Sec. 31, Guadalupe County School Land ..... Shut down 2,501 ft.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Drlg. 6,190 ft.
Hucony Oil Co. et al's No. 1 Richie, C SE Sec. 10, Blk. A, S.P. Sur. ..... Shut down 2,570 ft.
Sanger et al's No. 1 City of Abilene, 830 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land ..... Fishing 1,240 ft.
Sanger O. & R. Co.'s No. 1 Osborn, 330 ft. from SW of SE Sec. 68, Blind Asylum Land ..... Rigged up and shut down.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Drlg. 2,467 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mrs. J. B. McPhees' No. 1 Sam Belt, C Sec. 16, Blk. D-7, E.L. Sur. ..... Shut down 880 ft.; moved off machine.
Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. ..... Drlg. out cement 4,730 ft.; total depth 5,229 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G. Sur. ..... Shut down 640 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Nosworthy, 2,650 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor. Sec. 20, Blk. 24, H.&T.C. Sur. ..... Location.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. ..... Shut down 1,835 ft.
Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,582 ft. W of Sec. 77, James Webb Sur. ..... Drlg. 4,820 ft.

UPTON COUNTY

Cordova Union Land Co.'s No. 1 fee, 330 ft. from S and E line of Sec. 1, Blk. 1, M.-K.-T. Sur. ..... Location.
Duffey et al's No. 2 McClintic, 328 ft. N and 967 ft. E of Sec. 206, Blk. F, C.C.S.D.&R.G.N.G. Sur. ..... Rig.
Gulf Prod. Co.'s No. 1 King Ranch Oil & Lignite Co., 330 ft. from S and 990 ft. from W line, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Total depth 2,753 ft.; cleaning out after 130-qt. shot; swabbed 15 bbls. in 12 hours.
Penn and Shell Pet. Corp.'s No. 1 Anderson, 1,320 ft. from S and E, Sec. 37, Blk. Y, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 3,375 ft.
T. P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Machine.
Weekly Oil Corp.'s No. 1 Shirk, 468 ft. from S and 2,317 ft. from E, Sec. 15, Blk. 3, M.-K.-T. Sur. ..... Drlg. 300 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owen's No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Fishing 6,780 ft.
Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 33, Blk. D-8, E.L. Sur. ..... Shut down 3,035 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE Sec. 47, Blk. Y ... Shut down 4,009 ft.

WARD COUNTY

Alpine Oil Co.'s No. 2 Boogher, 2,200 ft. from NW and 1,800 ft. from SW lines, Sec. 11, Blk. 5, E.&T.C. Sur. .. Location.
Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW Sec. 18, Blk. 5, H.&T.C. Sur. .. Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,545 ft.; plugged back to 2,477 ft.
Magnolia Pet. Co.'s No. 1 Sealy, 330 ft. from S and E of NE cor. Sec. 46, Blk. 2, G.M.M.B.&A. Sur. ..... Running 6⅝-in. casing; total depth 2,894 ft.
R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ..... Shut down 1,200 ft.
Richardson et al's No. 5 O'Brien et al, 330 ft. from N and 2,970 ft. from W of Sec. 5, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,244 ft.
California Co. et al's No. 1 Lanham, 990 ft. from NE and SE, Sec. 35, Blk. 34, H.&T.C. Sur. ..... Building rig.
Tex-Oil Prod. Co.'s No. 1 Redman, 1,950 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 152, Blk. 34, H.&T.C. Sur. ..... Shut down 5,077 ft.; hole full salt water.
T. P. Coal & Oil Co.'s No. 1 James, 330 ft. from SW and SE, Sec. 5, Blk. 34, H.&T.C. Sur. ..... Location.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S, 220 ft. S and 1,910 ft. W, Sec. 17, Blk. 5 ..... Standard rig.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Shut down 2,520 ft.
T. P. Coal & Oil Co.'s No. 1 Barker, 330 ft. from SW and NW of Sec. 27, Blk. B-29, Public School Land ..... Cleaning out 2,425 ft.
California Co.'s No. 1 Allen, 2,310 ft. from NE and 330 ft. from SE, Sec. 30, Blk. 34, H.&T.C. Sur. ..... Moving in tools.

WINKLER COUNTY

Empire Gas & Fuel Co.'s No. 1-C Daugherty, 990 ft. from S and 2,310 ft. from E, Sec. 16, Blk. 74, Public School Land ..... Preparing to run 8¼-in. casing; Total depth 2,662 ft.
Magnolia Pet. Co.'s No. 1 Bashara, 1,650 ft. from S and 2,310 ft. from W, Sec. 17, B-3, P.S.L. Sur. ..... Drlg. 150 ft.
Magnolia Pet. Co.'s No. 3 Scarborough, 1,650 ft. from N and 990 ft. from W of Sec. 1, Blk. 77, Public School Land ..... Drlg. 2,600 ft.
A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE Sec. 4, Blk. B-5, Public School Land ..... Shut down 3,120 ft.
Prairie Oil & Gas Co.'s No. 1 Johnson, 2,310 ft. N and E, Sec. 16, Blk. 74, Public School Land ..... Top pay 3,135-40 ft.; 3,140 ft. tested 950 bbls. oil plus 76% water; estimated 5,000,000 ft. gas; killed well with mud; total depth 3,140 ft.
Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor. Sec. 2, Blk. B-5 ..... Shut down 4,639 ft.
Turman et al's No. 1 Daugherty, 2,310 ft. from E and 2,310 ft. from S line, Sec. 16, Blk. 74, Public School Land ..... Shut down 2,666 ft.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Empire Gas & Fuel Co.'s No. 1 Jordan and others, at the C of the SE of Section 94, Block 4, I.&G.N. Gibson Oil Corp.'s No. 1 The Foster Co., at the C of the NW of Section 24, Block 7, I.&G.N.

Gray County

Gulf Production Co.'s No. 2 S. Faulkner-A (Tr-A), 330 feet south and 2,310 feet west of the NE cor. of the S half of Section 33, Block B-2, H.&G.N. British American Oil & Shell Cos.' No. 2 J. L. Richardson, 330 feet south and west of the NE cor. of the W half of the NE of Section 127, Block 3, I.&G.N. Empire Gas & Fuel Co.'s No. 1 J. S. Bell, 1,320 feet north and 660 feet west of the SE cor. of the SW of Section 111, Block 3, I.&G.N. Empire Gas & Fuel Co.'s No. 1 A. Frashier, 1,320 feet north and west of the SE cor. of Section 177, Block 3, I.&G.N. Magnolia Petroleum Co.'s No. 2 H. Heithholt, 150 feet north and 1,156 feet east of the SW cor. of the SE of Section 152, Block 3, I.&G.N. The Texas Company's No. 3 W. J. Brown, 150 feet north and 330 feet east of the SW cor. of the W. J. Brown 247-acre tract out of Section 137, Block 3, I.&G.N.

Hutchinson County

Texas Interstate Pipe Line Co.'s No. 1 L. Bivins (Section 91), at the C of the E half of the north 160 acres of Section 91, Block 46, H.&T.C. Sinclair Oil & Gas Co.'s No. 1-A Johnson Brothers-B, 330 feet south and 430 feet west of the NE cor. of the NW of Section 32, Block Y.

Moore County

Texas Interstate Pipe Line Co.'s No. 1 J. T. Sneed, Jr. (Section 6), at the C of the NE of Section 6, Block B-10, E.L.R.R.

Potter County

Texas Interstate Pipe Line Co.'s No. 1 M. G. Rockwell (Section 102), at the C of the N half of the S half of Section 102, Block 46, H.&T.C.

NORTH CENTRAL AND WEST TEXAS

Archer County

E. J. Stump's No. 1 M. E. Chiles, 450 feet south and 150 feet east of the NW cor. of the M. E. Chiles 80-acre tract out of Section 19, Denton County School Land, League 3, A-117. Bridwell Oil Co.'s No. 1 Falls County School Land-C, 532 feet south and 600 feet east of the NW cor. of the south 50 acres of Section 20, Falls County School Land, A-130. C. B. Christie's No. 1 G. B. Hamilton, 150 feet south and west of the NE cor. of the south 40 acres of the west 140 acres of Section 5, B.B.B.&C., A-46. F. P. Cullum's No. 1 Falls County School Land-A, 200 feet south and east of the NW cor. of the E half of Section 19, Falls County School Land, A-130. Cullum & Alexander's No. 1 Falls County School Land, 200 feet north and 260 feet west of the SE cor. of the south 45 acres of Section 2, Falls County School Land, A-130. Electra-Archer Oil Co.'s No. 1 F. C. Green, 3,733 feet north and 3,819 feet east of the SW cor. of the Joseph Levins Survey A-259. Hedrick-Camp Drilling Co.'s No. 1 J. M. Inman and others, 150 feet south and 950 feet east of the most northerly NW cor. of the S. McKimb Survey A-493.

Brown County

John Cox and others' No. 1 H. M. Truehart Estate, 150 feet north and east of the SW cor. of the north 40 acres of the west half of the M. B. Lamar Survey No. 638. C. E. Bonwell and others' No. 1 N. Coffey, 1,300 feet south and 150 feet east of the NW cor. of the N. Coffey 475-acre tract out of the heirs of William H. Wharton Survey No. 318.

Clay County

Crosby Oil Co.'s No. 2-A William H. Meyers, 5,560 feet south and 4,197 feet east of the NW cor. of the C. Thompson Survey A-444.

Coleman County

Atlantic Oil Producing Co. and others' No. 2 Mrs. B. Taylor, 175 feet north and east of the SW cor. of the SE of the A. B. E. Jesson Survey A-1,340. McGahhey & Prairie Oil & Gas Co.'s No. 1 Thate Brothers, 150 feet south and east of the NE cor. of the west 320 acres and located in the east 356.5 acres of the M. Izod Survey No. 172. Prairie Oil & Gas Co.'s No. 1 C. E. Burns, 200 feet south and east of the NW cor. of Section 17, A. White Survey No. 161. Prairie Oil & Gas Co.'s No. 2 F. Golson, 450 feet south and 150 feet east of the NW cor. of their lease out of the I. Harris Survey No. 164. Baker Brothers' No. 1 E. S. Fiveash, 150 feet south and west of the NE cor. of the SW of the E. S. Fiveash 160-acre tract out of the Bonds & Sanders Survey No. 78. Joines and others' No. 1 C. C. Burk, 1,020 feet north and 4,980 feet east of the SW cor. of the A. Williams Survey No. 655, A-681.

Denton County

Lloyd Oil Corp. and others' No. 1 C. Jacobs, 150 feet north and 1,100 feet east of the SW cor. of the John Johnson Survey A-670, being 150 feet north and 1,050 feet west of the SE cor. of the C. Jacobs 58.66-acre tract.

Eastland County

Lone Star Gas Co.'s No. 1 B. P. Cozart, 336 feet south and 400 feet west of the NE cor. of Section 478, S.P.R.R.

Grayson County

Duncan & White's No. 1 W. W. Linville, 2,521 feet north and 3,350 feet west of the most easterly SE cor. of the J. P. Bailey Survey A-106.

Loving County

Gov. Potash Test No. 18 (Tex. No. 10) W. M. Leeman, 990 feet north and east of the SW cor. of Section 5, Block 28, School Land.

Montague County

Continental Oil & Bridwell Oil Co.'s No. 5 Mrs. L. Cunningham-C, 6,223 feet north and 1,688 feet west of the SE cor. of the T. R. Edmondson Sur. A-222.

Pecos County

Cardinal Oil Co.'s No. 10 Mrs. F. E. Forborg, 450 feet north and 996 feet west of the SE cor. of the W half of Section 539, Arnold & Barrett Survey A-3. Dixie Oil Co.'s No. 4 J. H. Tippett, 750 feet south and 150 feet west of the SE cor. of Section 539, Arnold & Barrett Survey A-3, and located in Section 61, Block 194, G.C.&S.F. Schelling & Slaughter's No. 1 I. G. Yates, 1,050 feet north and 150 feet east of the NW cor. of the Runnels County School Land, A-2,169, and located in Section 70, Block 1, I.&G.N.

Shackelford County

Hicks & Hubbard's No. 1 J. B. Matthews, 150 feet south and east of the NW cor. of the NE of the SE of Section 57, Block 10, E.T.R.R.

Taylor County

Eastland Oil Co. and others' No. 2 A. W. Hunter, 3,418 feet north and 2,174 feet west of the SE cor. of the William R. Ellis Survey.

Throckmorton County

Seitz-Comegys & Seitz' No. 2 A. McKeichan and others, 450 feet south and 750 feet west of the NE cor. of the south 80 acres of the D. T. Yates Survey A-1,129.

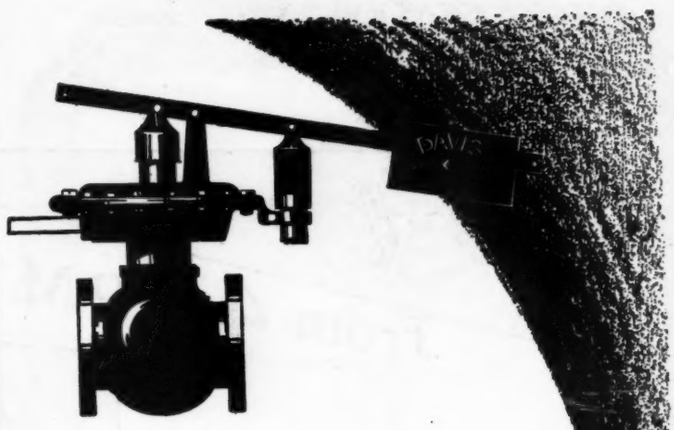
Wichita County

R. R. Clark et al's No. 9 W. P. and J. F. Bickley, 1,650 feet south and 150 feet west of the NE cor. of Section 2, C.&M. Survey A-594. C. W. Clark and others' No. 1 Kemp & Blair, 450 feet north and 2,281 feet west of the SE cor. of Block 28, Kemp Wichita Valley Land. G. J. Proctor's No. 4 W. B. Honaker, 150 feet south and 450 feet east of the NW cor. of his 40-acre lease out of Section 1, C.&M. Survey A-379. Rhoden & Bilile's No. 1 J. M. Honaker, 150 feet north and 450 feet west of the SE cor. of the south 40 acres of the north 200 acres of the J. M. Honaker 300-acre tract out of the James Cole Survey A-37.

Young County

G. B. Chandler's No. 2 J. D. Carpenter, 650 feet south and 400 feet east of the NW cor. of Section 237, T.E.&L. Consolidated Oil Co.'s No. 1 W. S. Bailey, 750 feet north and 450 feet east of the SW cor. of the W half of the SW of

(Continued on Page 169)



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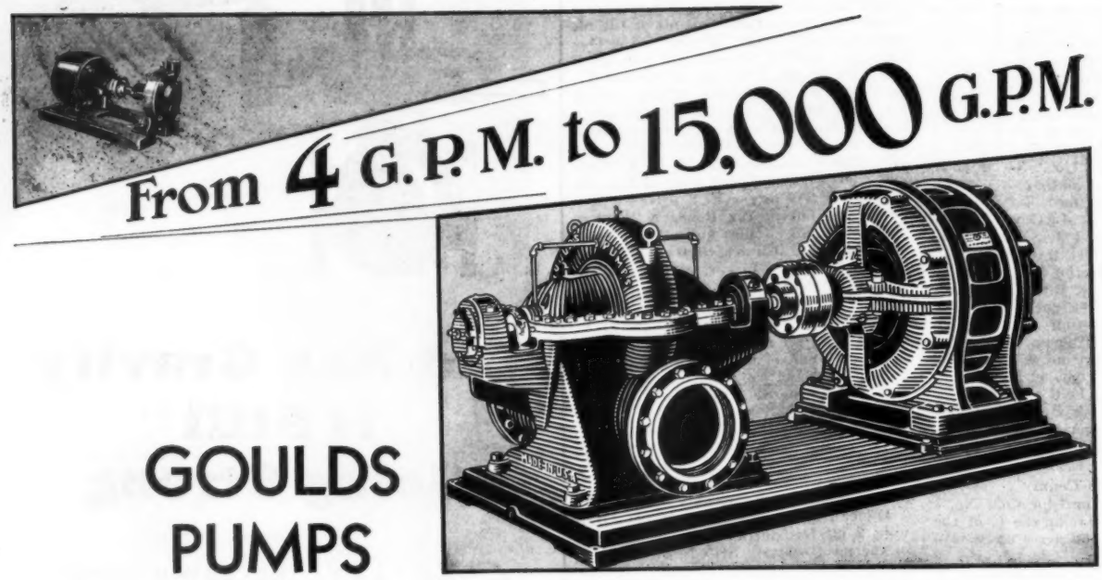

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Representatives in all Principal Cities

GOULDS PUMPS

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 48)

Cosden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Ragley Subd. of C. Miller ranch, Uranga Sur. ..... T. D. 4,390 ft.; showing gas.
Humble and Hurlbut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co. ..... T. D. 5,077 ft.; standing.
The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur. ..... Location.
Edwin Jones' No. 3 Rapp, Tuletta Townsite, 630 ft. N line, 508 ft. E line of lease ..... T. D. 4,312 ft.; abnd.; dry.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W, Lot 4, T. B. Barton Sur. ..... Rigging up.

BEXAR COUNTY

K. M. S. Pet. Co.'s No. 1 E. Salicky, 132 ft. from E line, 10 ft. S line of tract, Blk. 15, Mission Gardens ..... T. D. 858 ft.; drlg.
J. M. Russell's No. 1 F. L. Price, 1,590 ft. to N line, 660 ft. W line of tract in Angel Navarro Sur. .... T. D. 206 ft.; standing.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio ..... T. D. 200 ft.; skidding derrick.
August Magel's No. 1 Alvin Beck, 520 ft. from W line, 1,300 ft. from S line of Sur. No. 36 ..... Location.
Penn Oil Co.'s No. 1 Cooksey, 1,150 ft. to E line, 150 ft. to N line of survey, J. Riall Sur. ..... T. D. 1,460 ft.; completed for 40 bbls.
Weibacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur. ..... T. D. 720 ft.; drlg. plugs.
Penn Oil Co.'s No. 1 Kosub, 600 ft. N. of NE cor. of Cooksey tract, then 700 ft. E. on 175-acre tract, J. Riall survey ..... Location.
Somerset Syndicate's No. 1 Lagrange, 54 varas from S and W lines of Carrico tract, Sur. No. 48 ..... T. D. 375 ft.; shut down.
I. L. Dingman's No. 2 Cassin, 45 varas from N line, 378 varas from E line, Rodriguez Sur. ..... T. D. 1,200 ft.; drlg.
J. E. Weatherall and Ben C. Hilman's No. 1 Talley ..... Location.
Russell and Moore's No. 2 Mills, 20 ft. S of No. 1, Angel Navarro Sur. ..... T. D. 856 ft.; drlg.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 688-ac. tract, J. M. Sur. ..... T. D. 1,034 ft.; shut down.

CALDWELL COUNTY

Batts et al's No. 1 E. P. Roebuck, 1,150 ft. from SE line, 2,400 ft. from NE lines of farm, A. Swift Sur. ..... T. D. 2,619 ft.; abnd. in sulphur water.
W. D. Anderson's No. 1 Vickery, 150 ft. from N. line, 450 ft. from W. line of farm, Damon survey..... Location.
Cargil et al's No. 1 Thomas, 1,505 ft. from E line, 150 ft. from NE cor. of A. W. Jordan tract, J. Roberts Sur. ..... Derrick.
Anderson et al's No. 1 S. J. Barber, 300 ft. from SW line, 1,650 ft. from SE line, 392-ac. tract, Squire Damon Sur. ..... T. D. 1,919 ft.; waiting on cement.
Blount and Mills' No. 1 McMahan, 275 ft. from SW line, 75 ft. from SE line of 50-ac. tract, J. Pinchback Sur. ..... T. D. 309 ft.; shut down.

CALHOUN COUNTY

The Texas Company's No. 1 Thomas in the J. D. Tilly Sur. ..... T. D. 5,706 ft.; tested dry.

COLORADO COUNTY

Lewis Slagel Drilling Co.'s No. 1 Henderson, 950 ft. from W line, 2,310 ft. from S line, Sec. 1, Blk. 57, T.&P. Sur. ..... Location.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 495 ft.; drlg.
New Braunfels Oil & Gas Co.'s No. 1 Adolph Seidemann, 269 ft. to NE line, 470 ft. to NW line of farm in the A. M. Esneuricals 11-League Sur., 1 mile SE from New Braunfels ..... T. D. 1,570 ft.; standing.

DEWITT COUNTY

Penn Oil Co.'s No. 1 Junker, center N half 20-ac. tract, Pettus Sur. ..... T. D. 2,025 ft.; drlg.
H. T. Roe's No. 1 Leinhardt ..... T. D. 2,170 ft.; shut down.
A. H. Gibson et al's No. 1 Von Roeder, 750 ft. N line, 200 ft. E line of farm, W. G. Hill League ..... T. D. 1,480 ft.; reinstated; preparing to deepen.
Sheldon Petroleum Co.'s No. 1 Goehring, center of Goehring tract, H. Stubbefield survey.. ..... Location.

DUVAL COUNTY

Sloan et al's No. 1 Luby, SW cor. of Sur. 593 ..... Location.
S. R. C. Oil Co.'s No. 1 Duval County Land Co., Sur. 280 ..... Rigging up.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 6,290 ft.; drlg.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur... Location.
James Dalgish-Morrow's No. 1 Peterson, NW cor. Sec. 82, Blk. E, H.E.&W.T.R.R., NE cor. of county in the H.E.&W.T.R.R. Sur. ..... T. D. 4,340 ft.; shut down.

FRIO COUNTY

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupsor ..... T. D. 2,368 ft.; setting lines.

GOLIAD COUNTY

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexeter Sur. ..... T. D. 2,330 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur. ..... T. D. 3,921 ft.; drlg.
T. B. Slick's No. 1 Poetler, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur. ..... Rigging up.

GONZALES COUNTY

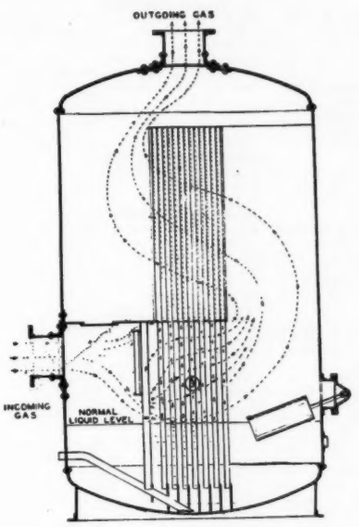
Mardon Oil Co.'s No. 1 Borrer, 150 ft. N and W in the James Stewart Sur., 5 miles NW from Waelder .... T. D. 1,850 ft.; shut down.
Mardon Oil Co.'s No. 1 Robinson ..... T. D. 3,284 ft.; waiting for orders.
United North & South Dev. Co.'s No. 2 Preston, 1,050 ft. NE, 450 ft. NW of upper S or SW cor. of Oethkin one-third league, 900 ft. SE of Preston No. 1 .... Location.
A. J. Keiffer et al's No. 1 B. B. Dix, 550 ft. W of E line, 2,775 ft. N of S line (Guadalupe River) in the Ira Nash Sur., 4 miles SE from Darst Creek ..... T. D. 2,920 ft.; shut down.
Andibus & Cummings' No. 1 R. D. & J. C. Miller, 523 ft. from S line, 1,000 ft. from E line, Ann Williams Sur. ..... T. D. 1,870 ft.; drlg.
Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur. ..... T. D. 2,500 ft.; reaming.

GUADALUPE COUNTY

Guy Lewis' No. 1 Arno Link, 1,500 ft. NE line, 1,155 ft. SE line, Carvajal Sur. ..... T. D. 2,845 ft.; abandoned in sulphur water.
J. S. Suttle's No. 2 A. Baenzinger, 40 ft. E line, 150 ft. S line of tract in the A. O. Mansola Sur., 5½ miles S from Seguin ..... T. D. 1,954 ft.; showing oil.
Ray Oil Co.'s No. 1 R. Felsing, 300 ft. NW line, 450 ft. NE line 120-ac. tract in the M. Baker Sur. ..... T. D. 900 ft.; shut down.
Miller & Calhoun's No. 1 Lindenberger, 750 ft. from E line, 650 ft. from S line of 250-ac. tract ..... T. D. 1,278 ft.; shut down.
Cranfill & Reynolds' No. 1 Meyer, 150 ft. S and E lines 100-ac. tract, J. Canter Sur. ..... T. D. 2,360 ft.; abandoned in sulphur water.

Billions of Bubbles

Skids
At the Corners



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MID-CONTINENT AGENCY

Originators of Oil Froth Absorbers

J. S. Suttle's No. 1 Wurzbach, 3,750 ft. from NW line, 2,450 ft. from NE line of Young Settoon survey.....Spudded.
United North & South Development Co.'s No. 1 Wells, 450 ft. each way out of NW corner of Wells tract, James Johnson League .....Location.
O. K. Emerson's No. 1 C. A. Phillips, center of 30-ac. tract, Velda Sur. .....Moving in.
Jones and Erwin's No. 1 O. Forrester, 2,700 ft. from NE cor., 450 ft. from NW line, O. Forrester tract, Pate Sur. .....T. D. 707 ft.; shut down.
Trinity Drillers' No. 2 White, 1,205 ft. from NE line, 50 ft. from SE line, 166-ac. tract, Miller Sur. ....T. D. 2,030 ft.; drlg.
Jones and Erwin's No. 1 Hoese, 150 ft. each way out of NE cor. of 200-ac. tract, J. Leal Sur. .....Spudded.
Adams and Lyles' No. 1 Seligman, 150 ft. from E line, 300 ft. from S line of 462-ac. tract, John King Sur .....T. D. 73 ft.; drlg.

HAYS COUNTY

Hailey & Whittington's No. 1 Heidenrich, Hamphill Sur...T. D. 735 ft.; shut down.
San Marcos Oil & Gas Co.'s No. 1 A. H. Alford .....T. D. 513 ft.; waiting on cement.

JIM HOGG COUNTY

Cole Petroleum Co.'s No. 1 Allen, 150 ft. from W line, 336 ft. from N line, Blk. 7, Sur. No. 23 .....T. D. 25 ft.; standing.
Wm. H. Barnhart's No. 1 McCampbell, 450 ft. to W line, 150 ft. to N line, Lot 32, Barnhart Subd., Los Viboritas grant .....T. D. 2,005 ft.; standing.
E. E. Watts' No. 1 Gomez, 4,200 ft. to N line, 1,400 ft. to E line of Sur. 125 .....T. D. 1,410 ft.; drlg.
J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 5-A Hinojosa Sur. .....T. D. 1,602 ft.; standing.
P. H. Wilson's No. 1 Edds, Sur. No. 210 .....Location.

JIM WELLS COUNTY

J. Walsh et al's No. 1 W. D. Wade, 1,035 ft. NE line, 300 ft. NW line of N cor., Lot 1, Blk. C, W. H. Bode Sur. .....T. D. 2,475 ft.; standing.

KARNES COUNTY

Clayton & Pierce's No. 1 Barnett in the Alex Hunter Sur., 6 miles N of Karnes City .....T. D. 3,000 ft.; shut down.
J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouil Sur. ....T. D. 1,900 ft.; drlg.
Hurlbut et al's No. 1 Newberry, 450 ft. SE and SW line of Newberry 428-ac. tract, Carlos Martinez Sur. ....T. D. 2,975 ft.; standing.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. .....T. D. 1,110 ft.; shut down.
A. S. Mowinkie's No. 1 Katson, 150 ft. from N line, 150 ft. from E line of tract, Sur. No. 724, 9 miles due W of Kendalia .....T. D. 1,543 ft.; shut down.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia .....T. D. 900 ft.; drlg.
Dickinson et al's No. 1 Edmonson, 150 ft. from S line, 350 ft. from W line of tract in the J. O. Blair No. 72 Sur., 1 mile NW from Kendalia ..... T. D. 40 ft.; spudded in and shut down.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale .....T. D. 2,290 ft.; drlg.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia .....T. D. 1,205 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line .....T. D. 705 ft.; fishing.
Permian Oil Co.'s No. 1 Boles, S.A.&M.G. Ry. Sur. No. 542½ .....T. D. 540 ft.; side-tracking.
Hardy Sitton's No. 1 McMillan, south central part of 180-ac. lease, B. Williams Sur. .....Location.
Abercrombie Oil Co. and Harrison Oil Co.'s No. 1 Kuns, 900 ft. from E line, 1,900 ft. from S line of McCormack Sur. .....T. D. 706 ft.; drlg.

KERR COUNTY

Evans et al's No. 1 Love Ranch, 100 ft. from S line Sur. 1,597, 1,000 ft. E of W line of J. Martinez No. 1,594 Sur. .....T. D. 2,100 ft.; drlg.

KLEBERG COUNTY

Bowen & Sarles' No. 1 Robert H. Simmons in the A. Houston Sur. No. 611, Sec. 7, King Subd., 150 ft. out of NW cor. of SW .....T. D. 1,580 ft.; drlg. shale.

KINNEY COUNTY

Magnolia Pet. Co.'s No. 1 Whitehead-Wardlaw, 2,640 ft. W line and S line of Melton Valdez grant .....T. D. 3,297 ft.; drlg.
Mardon Oil Co.'s No. 2 Jim Clamp .....T. D. 1,389 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. .....T. D. 850 ft.; drlg.

LASALLE COUNTY

Fred W. Vaiz' No. 1 Coleman, 200 ft. from S and E. lines of SW Sec. 514, B.S.&F. Sur. .....Spudded and shut down.

LAVACA COUNTY

Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Huesser Sur. .....Ready to spud

LIVE OAK COUNTY

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay, in the Bridget Fadden Sur., 3 miles E from George West..T. D. 915 ft.; shut down.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. .....T. D. 2,277 ft.; coring.
O. Stalley et al's No. 1 Nichols, 2,000 ft. from W line, 500 ft. from S line in the Ayers Sur. .....Location.
Illinois Exploration Synd.'s No. 1 Reeves-Brown, 1,300 ft. S of Sellers tract, 1,300 ft. E of Ry. .....Derrick.
Penn Oil Co.'s No. 1 Lyne, 900 ft. to W line, 330 ft. from S line of Sec. 69, on Devonian block .....T. D. 4,312 ft.; abnd.; dry.
Sid Keoughan's No. 1 C. E. Terrell, 6,000 ft. from N Line, 1,800 ft. from E line, Dan O'Boyle Sur. .....T. D. 1,700 ft.; drlg.
Tul-Tex Oil Co.'s No. 1 L. Jacobs, 4 miles from N of Callihan Field .....Spudded.

LEE COUNTY

Burt et al's (M. D. Rickett) No. 1 R. C. Sanders .....T. D. 2,124 ft.; shut down.
A. H. Wheeler and associates' No. 1 fee, 14 miles NE from McDade, Blk. 47, Donohoe Sur. .....T. D. 1,987 ft.; abnd.
J. P. Perry et al's No. 1 W. H. Thomas .....T. D. 1,285 ft.; fishing.

McMULLEN COUNTY

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. .....T. D. 632 ft.; drlg.
Sheree, Brodie and Emick's No. 1 Shiver, Henry Brewer Sur. .....Spudded and shut down.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 7, I.&G.N. Sur. .....T. D. 3,475 ft.; standing.
Rycade Oil Corp.'s No. 5 Chittim, 600 ft. W of No. 3 Chittim, 500 ft. E line, 225 ft. from S line of SE Sec. 115, Blk. 7, in the I.&G.N. Sur. .....T. D. 5,428 ft.; drlg. plugs.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. .....T. D. 7,092 ft.; fishing.

MEDINA COUNTY

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,554 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay .....T. D. 1,645 ft.; standing.
Caldwell et al's No. 1 L. W. Burrell .....T. D. 2,167 ft.; moving in heavier rig.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine .....T. D. 2,530 ft.; drlg.
United North & South Dev. Co.'s No. 1 Little, S from D'Hanis and near S line of county .....T. D. 3,396 ft.; drlg.

MILAM COUNTY

Rheubotham & Tate's No. 1 Johnson, 325 ft. from N line, 250 ft. from W line of 40-ac. tract, D. Robinson Sur. .....T. D. 1,475 ft.; drlg.

Service Oil & Gas Co.'s No. 1 H. G. Hensiee, 500 ft. from NW line, 400 ft. from NE line of 50-ac. tract, Valdez Sur. .....T. D. 2,180 ft.; drlg.

NUECES COUNTY

Independent Oil & Gas Co.'s No. 1 Baldwin, 330 ft. each way out of NE of the J. C. Russell Subd., Blk. 11, 3 miles W from Corpus Christi .....T. D. 6,140 ft.; abnd. drlg.
Houston Oil Co.'s No. 1 Comstock, 105 ft. N of C of tract..T. D. 1,864 ft.; drlg.
H. H. Weinert et al's No. 1 Mohle, 450 ft. S line, 450 ft. W line of Sec. 94 .....Rigging up.
Houston Oil Co.'s No. 1 Joe Hunter, 607 ft. from W line, 165 ft. from S line, 75-ac. tract, Sec. 591 ....Location.
Calallen Oil & Gas Co.'s No. 2 Allen, 800 ft. from E. line, 1,100 ft. from S line, Blk. 76, Garias survey....T. D. 1,517 ft.; drlg.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop subdivision, Palo Alto lands .....T. D. 452 ft.; set casing.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 .....T. D. 525 ft.; drlg.

SAN PATRICIO COUNTY

J. L. Kennedy's No. 1 McRae, 1,170 ft. NW of the C of the SE line of 500-ac. tract .....T. D. 2,152 ft.; shut down.
George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neil Sur., Abstract 211 .....T. D. 4,020 ft.; shut down.
Saxet Oil Co.'s No. 1 Carroll, 800 ft. N line, 130 ft. to W line, Lot 32-A, Sec. 32 of the fourth subd., Taft farms .....Moving in tools.
Cosden Oil Co.'s No. 1 Ramsey, 3,000 ft. from N line, 4,500 ft. from E. line, Portillo survey .....Spudded.
Union Prod. Co.'s No. 4 Welder, 3,000 ft. N line, 4,500 ft. E line of tract in the E. Portillo Sur. .....T. D. 5,387 ft.; coring.
G. B. Peterman et al's No. 1 Crow, 150 ft. from S line, 170 ft. from W line of Sec. 24 of the Fulton-Coleman Pasture Lands, J. H. Paul Subd. .....T. D. 4,096 ft.; shut down.
G. B. Peterman et al's No. 1 Foster, 150 ft. from E line, 1,420 ft. from N line of Blk. 5 of the Welder-Coleman-Fulton Subd., 3½ miles W from Sinton ....t...Location.
LaFeria Oil & Gas Co.'s No. 1 C. C. Smith, in J. C. White Sur., 690 ft. to N line, 350 ft. to E line .....T. D. 4,067 ft.; shut down.
Cosden Oil Co.'s No. 1 Powell, 330 ft. E line of 36-ac. tract in Sec. 32, Paul Subd., Coleman-Fulton Pasture Lands .....T. D. 2,600 ft.; drlg.

STARR COUNTY

J. L. Smith's No. 1 Welch, Perdernal Sur. .....T. D. 1,060 ft.; drlg.
Virginia Oil Co.'s No. 1 Kelsey-Bass, 150 ft. to S line, 1,850 ft. to W line, Blk. 6, Por. 75, Courargo .....T. D. 373 ft.; rebuilding derrick.

TRAVIS COUNTY

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. ....T. D. 385 ft.; shut down.

UVALDE COUNTY

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 .....T. D. 2,710 ft.; drlg. shale.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde .....T. D. 1,193 ft.; standing.

VICTORIA COUNTY

The Texas Co.'s No. 1 A. M. McFadden, 1,550 ft. N and E lines of H. Bonny Sur. .....T. D. 5,471 ft.; tested dry.

WEBB COUNTY

J. L. Elliott's No. 1 Esperanza Land & Stock Co., 950 ft. from N line, 2,231 ft. E line, Sur. 815 .....T. D. 1,450 ft.; standing.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. .....Rigging up.
B. F. Nixon's No. 1 A. Guiterrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant ....T. D. 50 ft.; standing.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... T. D. 1,605 ft. testing.
National Oil Co.'s No. 1-A Adams, 150 ft. N of No. 1, Blk. 4, Sec. 11, Adams Subd., Borrego grant .....T. D. 1,300 ft.; drlg.
National Oil Co. of Delaware's No. 1 Luther, 617 ft. NW line, 96 ft. NE line, Blk. 97, Da Prom Subd., Porcion 6 .....T. D. 380 ft.; standing.
Mackenzie and Tallmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 .....T. D. 100 ft.; drlg.
F. M. Blair & Son's No. 1 Guiterrez, 150 ft. from NW line, 660 ft. from SW line, Blk. 2, Blair Subd., Comitas grant .....T. D. 1,750 ft.; drlg.
Lincoln Oil & Gas Co.'s No. 1 Guiterrez, Blk. 23, Subd., La Huerta grant .....T. D. 1,150 ft.; drlg.
J. J. O'Hern's No. 1 S. Benavides, 150 ft. from NW line, 150 ft. from NE line, Blk. 10, Fansler Subd., Villa grant .....Location.

ZAVALA COUNTY

Ed Anglin's No. 5 Pryor .....T. D. 1,034 ft.; drlg.
Texas Gas Utilities Co.'s No. 1 Ike T. Pryor, Jr. .....T. D. 1,211 ft.; tested gas, estimated 20,000,000 ft.
Ed Anglin's No. 6 La Pryor .....Location.
Carl Cromwell's No. 1 Whitecotton, C of NW Sec. 1, A.P.&M. Sur. .....Location.
Ed Anglin's No. 1 Matthews, 118 varas from S and W lines of Sec. 4, Blk. 2, I.&G.N. Sur. .....T. D. 750 ft.; drlg.
Texas Gas Utilities Co.'s No. 2 Pryor, 900 varas W, 1,108 varas S of Anglin's No. 3 Pryor .....T. D. 980 ft.; drlg.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 1,220 ft. from NE cor., Sur. No. 13 ..... T. D. 3,080 ft.; drlg.

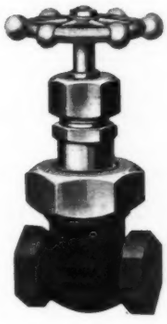
SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 48)

Magnolia Petroleum Co.'s No. 4 Rand Miller, 150 ft. from NW line, 1,350 ft. from NE line of lease, J. B. Alexnader Sur. .....T. D. 2,654 ft.; completed for 650 bbls.
The Texas Company's No. 8-B C. Knoblock, 1,080 ft. from NE line, 150 ft. from SE line of 75-ac. tract, J. R. Robinson Sur: .....T. D. 2,560 ft.; completed for 35 bbls.
The Texas Company's No. 6-A Knoblock, 750 ft. from SW line, 600 ft. from SE line of lease, Robinson Sur. .....Location.
The Texas Company's No. 7-A Knoblock, 1,225 ft. from SW line, 600 ft. from SE line of lease, Robinson Sur. .....Location.
The Texas Company's No. 9-A Knoblock, 450 ft. from NE line, 600 ft. from SE line of lease, Robinson Sur. .....Location.
The Texas Company's No. 4 Pauline Roamel, 850 ft. from SE line, 450 ft. from SW line of lease, Hodges Sur. .....Location.
The Texas Company's No. 1 Appling, 180 ft. from S line, 450 ft. E of NE cor. of Alexander Sur. in the Hodges Sur. .....Location.
The Texas Company's No. 7 Posey, 300 ft. SW of NE line, 450 ft. from NW line of Posey lease, Robinson Sur. .....T. D. 2,562 ft.; drlg.

CHAPMAN POOL—WILLIAMSON COUNTY

W. D. Anderson's No. 6-A T. P. Simmons .....T. D. 1,745 ft.; completing.
W. D. Anderson's No. 7 M. V. Lawrence .....T. D. 2,242 ft.; shut down.
W. D. Anderson's No. 8 M. V. Lawrence .....Location.
Bartlett & Wilson's No. 1 R. E. Stewart .....T. D. 741 ft.; drlg.
E. L. Chapman et al's No. 2-A Sides .....Rigging up.



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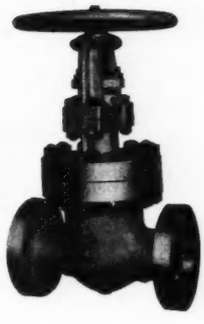

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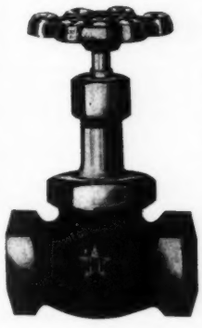

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Republic Supply Company

OIL AND GAS WELL SUPPLIES
Cable and Rotary Tools

GENERAL OFFICES: HOUSTON, TEXAS

J. L. Collins & Co.'s No. 5 M. V. Lawrence, 150 ft. from W line, 515 ft. from S line of 27-ac. tract, S. Miller Sur. ....T. D. 1,462 ft.; drlg.
E. E. Ertel's No. 1 H. Swanson ....T. D. 1,025 ft.; shut down.
Elliott and Moore's No. 1 A. J. Carlson ....T. D. 40 ft.; shut down.
F. Fuchs' No. 1 C. D. Johnson ....T. D. 1,390 ft.; drlg.
McNeal et al's No. 7 Kilgore ....Skidding derrick.
E. C. Mead's No. 1 Abbott, 100 ft. from N and W lines of 6-ac. tract, S. Miller Sur. ....T. D. 2,166 ft.; shut down.
Marts et al's No. 1 Ollie Simmons ....T. D. 2,241 ft.; completed for 50 bbls.
G. Stratton's No. 5 J. C. Abbott, 450 ft. from E line, 150 ft. from S line of 32-ac. tract, S. Miller Sur. ....Spudded.

PETTUS AREA—BEE COUNTY

Buchanan and Karone Oil Co.'s No. 1, Blk. 8, Pettus Townsite, center of the block ....T. D. 3,450 ft.; drlg.
Batex Oil Co.'s No. 2 Burnett, 361 ft. from N line, 900 ft. from E line, John Pace Sur. ....T. D. 3,708 ft.; completed gasser.
Batex Petroleum Co.'s No. 3 Burnett, 360 ft. from N line, 600 ft. from E line of 320-ac. tract, Kerr Sur. ....Location.
C. R. M. Drilling Co.'s No. 1, Blk. 9, Pettus Townsite, center of block ....T. D. 3,913 ft.; abnd. salt water.
Hawn, Mauldin and Grayburg's No. 1 Copeland, 450 ft. from S line, 150 ft. from E line, 20-ac. tract, Hadley Sur. ....T. D. 3,568 ft.; abnd. dry.
Houston Oil Co.'s No. 3 Neumann, 600 ft. from S line, 300 ft. from W line, 197-ac. tract, Kerr Sur. ....T. D. 3,714 ft.; completed for 100 bbls.
Houston Oil Co.'s No. 1, Block 21, Pettus Townsite, center of block ....T. D. 3,892 ft.; coring.
Humble Oil & Refining Co.'s No. 8 McKinney, S offset to Blk. 21, Pettus Kerr Sur. ....T. D. 3,300 ft.; drlg.
J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur. ....T. D. 3,200 ft.; drlg.
Moody-Seagraves Producing Co.'s No. 2 McKinney, 3,840 ft. from E line, 450 ft. from S line, McKinney tract, R. C. Ballard Sur. ....Location.
The Texas Company's No. 2 J. R. Scott, 200 ft. from N line, 150 ft. from W line, J. M. Urango Sur. ....T. D. 690 ft.; drlg.
The Texas Co.'s No. 3 J. R. Scott, 7,100 ft. from No. 1, SW ....Location.
Union Producing Co.'s No. 23 Ray, east offset to Blk. 39 of Pettus Townsite ....T. D. 3,919 ft.; set casing.
Union Producing Co.'s No. 25 Ray, 1,700 ft. from S line, 1,400 ft. from E line of P. Miller Sur. ....T. D. 365 ft.; set casing.
Union Producing Co.'s No. 26 Ray, 2,500 ft. from S line, 2,000 ft. from E line, P. Miller Sur. ....Location.
Wilson and Hill's No. 1, Blk. 14, Pettus Townsite, center of the block ....Waiting on permit.
Wilson and Hill's No. 1, Blk. 16, Pettus Townsite, center of the block ....Ready to spud.

LASSATER POOL—BROOKS COUNTY

Houston Oil Co.'s No. 2 Holbein-Wormser, 2,100 ft. NE of No. 1 ....T. D. 4,627 ft.; drlg.

AGUA DULCE FIELD—NUECES COUNTY

South Texas Production Co.'s No. 2 Ollie Purl, 1,200 ft. NE of No. 1 ....T. D. 1,986 ft.; setting csg.; gas sand.
South Texas Production Co.'s No. 3 Walter, 800 ft. from S line, 460 ft. from E line of Walters tract in Section 34 ....T. D. 1,984 ft.; setting csg. to test.

SAXET FIELD—NUECES COUNTY

Saxet Oil & Gas Co.'s No. 2 Donnegan, 2,150 ft. due S of No. 1 Donnegan ....T. D. 4,905 ft.; drlg.
Saxet Oil & Gas Co.'s No. 7 Dunn, 2,400 ft. NW and 200 ft. NE of S cor. of Dunn farm ....Derrick.

WHITE POINT FIELD—SAN PATRICIO COUNTY

Saxet Oil & Gas Co.'s No. 17 Rachel, 150 ft. from N line, 1,600 ft. from E line of 200-ac. tract ....T. D. 3,920 ft.; coring.

LION McFADDEN POOL—VICTORIA COUNTY

Houston Oil Co.'s No. 1 McFadden, 330 ft. S and 900 ft. E of SE cor. of survey, L. Mann Sur. ....T. D. 4,105 ft.; coring.
Lion Oil Refining Co.'s No. 2 McFadden, 1,917 ft. W of NE cor. and 512 ft. at right angles from N line of Edwards Sur., 660 ft. E of No. 1 in the M. J. Travesia Sur. ....T. D. 6,330 ft.; drlg.

LAREDO DISTRICT

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Magnolia Petroleum Co.'s No. 1 Edge-Hahl, 150 ft. from N line, 150 ft. from W line, Sur. 63 ....T. D. 3,320 ft.; drlg.
F. M. Frasher and R. F. Schoolfield's No. 1 Duval Land Co., 990 ft. from N line, 1,320 ft. from W line, Sur. 123 ....Location.

RANDADO POOL—JIM HOGG COUNTY

J. W. Pippin's No. 1 N. Hinnant, 150 ft. each way from SW cor., Blk. 11, Sur. 147 ....Derrick.

KOHLER POOL—DUVAL COUNTY

Co-operative Drilling Co.'s No. 4 John Dinn, 450 ft. from N line, 450 ft. from W line, Blk. 4, Sur. 454 ....Location.

S. R. C. POOL—DUVAL COUNTY

S. R. C. Oil Co.-Vacuum Oil Co.'s No. 2 Duval County Ranch Co., 1,050 ft. from E line, 2,050 ft. from N line, Sur. 293 ....T. D. 1,700 ft.; drlg.

COLE POOL—DUVAL COUNTY

Magnolia Petroleum Co.'s (O'Hern & Seacord) No. 3-A Benavides, 330 ft. from SW line, 330 ft. from SE line, Blk. 12, Sur. 174 ....T. D. 2,370 ft.; drlg.

ROMA POOL—STARR COUNTY

The Texas Company's No. 5-A V. C. de Guerra, 675 ft. from N line, 675 ft. from E line, Share 305, Por. 67, Jurisdiction of Mier ....T. D. 3,540 ft.; drlg.

MID-OJUELOS—WEBB COUNTY

O. W. Killam's No. 1 Garcia, 1,050 ft. from W line, 150 ft. from N line, Blk. 45, Ojuelos grant ....T. D. 150 ft.; drlg.

REISER POOL—WEBB COUNTY

O. W. Killam's No. 1 Killam (Villegas) on Blk. 4, Sur. 1,879 ....T. D. 2,620 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

Magnolia Petroleum Co.'s No. 1 Jones-Wright, 330 ft. from S line, 330 ft. from W line, Sur. 674 ....T. D. 4,980 ft.; drlg.
George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ....T. D. 700 ft.; drlg.

COLE FIELD—WEBB COUNTY

Alamo Drilling & Leasing Co.'s No. 2 Benavides, 660 ft. from N line, 660 ft. from E line, Blk. 16, Sur. 694 ....T. D. 1,600 ft.; drlg.
O. W. Killam's No. 1 Bruni, 200 ft. from NW line, 450 ft. from NE line, Sur. 10 ....T. D. 2,570 ft.; drlg.

CHARCO REDONDO POOL—ZAPATA COUNTY

C. R. Moore and J. W. Moore's No. 1 Adela G. de Flores, 330 ft. from NW line, 330 ft. from NE line, Doty Subd. ....T. D. 1,573 ft.; testing.
C. R. Moore and J. W. Moore's No. 2 Adela G. de Flores, 150 ft. from NE line, 150 ft. from SE line, Doty Subd. ....T. D. 50 ft.; standing.

JENNINGS-MUCKLEROY POOL—ZAPATA COUNTY

Alamo Drilling & Leasing Co.'s (Claggett) No. 6 Trevino, 450 ft. from S line, 150 ft. from E line, Blk. 1, Sur. 66 ....Location; abandoned.
Allied Oil & Gas Co.-Allen and Morris' No. 10 Guiterres, 3,960 ft. from SE line, 150 ft. from NE line, Share 4, Fansler Partition, Comitas grant ....T. D. 1,299 ft.; comp. for 60 bbls.
Allied Oil & Gas Co.'s No. 12 Gutierres, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ....Spudded.
Allied Oil & Gas Co.-Allen & Morris' No. 11 Gutierres, 3,063 ft. from SE line, 150 ft. from NE line, Share 4, Fansler Partition, Comitas grant ....T. D. 1,303 ft.; comp. for 90 bbls.
Keen and Jackson's No. 1 M. Garza, 150 ft. from NW line, 150 ft. from SW line, Blk. 59, Zorro ranch, Comitas grant ....T. D. 1,438 ft.; abnd., dry.
Nordan and Morris and Grimm and Yskey's No. 1 S Bustamente, 990 ft. from NE line, 150 ft. from NW line, Share 34, Fansler Partition, Comitas grant ....Derrick.
W. R. Shankle's No. 6 Guiterrez, 1,800 ft. from NE line, 2,989 ft. from NW line, Share 4, Fansler Partition, Comitas grant ....Derrick.
W. R. Shankle's No. 7 Guiterrez, 2,100 ft. from NE line, 2,898 ft. from NW line, Share 4, Fansler Partition, Comitas grant ....Location.
W. R. Shankle's No. 13 Trevino, 1,561 ft. from NW line, 150 ft. from SW line, Blk. 15, Sur. 65 ....T. D. 1,298 ft.; comp. for 75 bbls.
W. R. Shankle's No. 14 Trevino, 150 ft. from SW line, 150 ft. from NW line, Blk. 15, Sur. 65 ....T. D. 600 ft.; drlg.
S. R. C. Oil Co.'s No. 1 F. Cuellar, 300 ft. from S line, 300 ft. from W line, Blk. 6, Sur. 285 ....Location.
S. R. C. Oil Co.'s No. 2 F. Cuellar, 300 ft. from S line, 300 ft. from E line, Blk. 8, Sur. 19 ....Location.
S. R. C. Oil Co.'s No. 9-A Cuellar, 450 ft. from NW line, 150 ft. from NE line, Blk. 1, Sur. 65 ....T. D. 1,029 ft.; waiting on cement.
S. R. C. Oil Co.'s No. 10-A Cuellar, 150 ft. from NW line, 150 ft. from SW line, Blk. 10, Sur. 65 ....Spudded.
S. R. C. Oil Co.'s No. 1-C Trevino, 150 ft. from NW line, 1,230 ft. from SW cor. of Blk. 14, Cerrito Blanco grant ....T. D. 1,975 ft.; drlg.
S. R. C. Oil Co.'s No. 9-B Cuellar, 660 ft. from SW line, 150 ft. from SE line, Blk. 7, Sur. 65 ....T. D. 200 ft.; drlg.
S. R. C. Oil Co.'s No. 3-C (12-B) Trevino ....Location.
S. R. C. Oil Co.'s No. 14-B Cuellar, 750 ft. from W line, 150 ft. from S line, Blk. 13, Sur. 65 ....T. D. 1,249 ft.; comp. for 60 bbls.
Whicker, Arnold & Ahler's No. 3 Garza, 150 ft. from SW line, 450 ft. from SE line, Blk. 1, Zorro Ranch Subd., Comitas grant ....Rigging up.
J. W. Winch's No. 1 Bustamente, 450 ft. from NW line, 150 ft. from NW line, Blk. 7, Share 5, Fansler Partition, Comitas grant ....T. D. 1,232 ft.; waiting on cement.

JENNINGS-CUELLAR POOL—ZAPATA COUNTY

O. W. Killam's No. 27 Cuellar, 660 ft. from NW line, 1,750 ft. from NE line, Cerrito Blanco grant ....T. D. 1,473 ft.; comp. for 20 bbls.
O. W. Killam's No. 30-B Cuellar, 2,200 ft. from S line, 1,250 ft. from SW line, Sur. No. 277 ....T. D. 1,580 ft.; comp. for 100 bbls.
O. W. Killam's No. 1 R. Lopez, 600 ft. from E line, 475 ft. from S line, Blk. 6, Sur. 71 ....T. D. 2,295 ft.; drlg. sand.
O. W. Killam's No. 1 Slator, Blk. 1, Slator Pasture, Borrego grant ....Spudded.
O. W. Killam's No. 31-C Cuellar, 210 ft. from N line, 925 ft. from SW line, Sur. 278 ....T. D. 750 ft.; drlg.
O. W. Killam's No. 32-B Cuellar, Sur. 277 ....Derrick.

MIRANDO VALLEY POOL—ZAPATA COUNTY

O. W. Killam's No. 1 Lopez, 181 ft. from W line, 150 ft. from S line, Blk. 16, Sur. 251 ....Derrick.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 45)

Humble & Valley's No. 4 Wilson ....Comp. flowing 450 bbls. 3,481 ft.
Humble & Valley's No. 6 Woodley ....Derrick.
Humble & Valley's No. 7 Woodley ....Derrick.
Humble & Valley's No. 8 Woodley ....Derrick.
Humble & Valley's No. 9 Woodley ....Derrick.
Humble & Valley's No. 10 Woodley ....Rig.

HUMBLE—HARRIS COUNTY

Cullen West's No. 5 Lee, south ....Rig.
P. S. Griffith's No. 1 fee ....Location.
LaRue trustee's No. 1 Crane, northwest ....Derrick.
M. LaRue trustee's No. 1 Tuffly, northwest ....Gumbo 1,405 ft.; set 10-in. csg.
South Texas Pet. Co.'s No. 2 Burt (workover) ....Comp. pumping 75 bbls. 5,198 ft.
South Texas Pet. Co.'s No. 3 Burt, east ....Rig.
South Texas Pet. Co.'s No. 3 Lee (workover) ....Drlg. hard shale 5,383 ft.
Sun Oil Co.'s No. 14 Bender, west ....Oil sand 4,673 ft.; set 23 ft. screen; swabbed dry; to deepen.
Sun Oil Co.'s No. 16 Bender ....Derrick.
Sun Oil Co.'s No. 17 Bender ....Set 44 ft. screen 4,412 ft.; to pump.
Sun Oil Co.'s No. 18 Bender ....Drlg. hard sand 2,118 ft.
Sun Oil Co.'s No. 49 River, north ....Drlg. shale 5,034 ft.
The Texas Company's No. 2 fee ....Set screen 4,397 ft.; washing.
The Texas Company's No. 25 House, northeast ....Total depth 4,614 ft.; to pump.
The Texas Company's No. 43 Stevenson, east ....Sand and shale showing oil 4,135-67 ft.; cmtd. 6⅝-in. csg.
Trapshooter Oil Co.'s No. 2 Rosenbaum ....Drlg. hard sandy lime 1,825 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 2 Manchester Corp. ....Rig.
Mike Kouri's No. 1 Jones fee, northwest ....Total depth 3,840 ft.; gumbo lime; sidetracking 2,867 ft.
Rio Bravo Oil Co.'s No. 20-A Settegast ....Drlg. shale 5,550 ft.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 61 Davis ....Standing.
Navarro Oil Co.'s No. 5 Davis ....Drlg. salt 4,000 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 5 Lost Lake ....Fishing stuck drill stem 5,158 ft.
Pure Oil Co.'s No. 12 Lost Lake ....Rig.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 27 Wisdom ....Total depth 5,662 ft.; sidetracking stuck drill stem 4,110 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 92-B Cotton ....Comp. pumping 14 bbls. 154 ft.
Rio Bravo Oil Co.'s No. 100-A Cotton ....Rig.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 78 Simms-Smith ....Total depth 4,973 ft.; shut down for repairs.

SPINDLETOP—JEFFERSON COUNTY

Battleship Oil Co.'s No. 3 Parker ....Shut down 2,778 ft.
Yount Lee Oil Co.'s No. 52 McFaddin (workover) ....Sand 5,329 ft.; tested salt water; sidetracking 3,052 ft.
Yount Lee Oil Co.'s No. 142 McFaddin ....Coring 5,022 ft.
Yount Lee Oil Co.'s No. 143 McFaddin ....Drlg. 4,125 ft.
Yount Lee Oil Co.'s No. 144 McFaddin ....Drlg. water sand 3,669 ft.

NORTH DAYTON—LIBERTY COUNTY

Saxet Oil Co.'s No. 2 Davis ....Drlg. shale 3,957 ft.
Harrison and Abercrombie's No. 1 Gulf fee ....Total depth 4,952 ft.; drlg. plug 4,743 ft.
Harrison and Abercrombie's No. 1 Jones ....Total depth 4,376 ft.; sidetracking 4,010 ft.
Harrison Oil Co.'s No. 4 Quintette (workover) ....Drlg. sticky shale 4,248 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Prod. Co.'s No. 10 Smith ....Drlg. sandy shale and lime 5,458 ft.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 14 O'Brien ....Drlg. shale 3,640 ft.

ORANGE—ORANGE COUNTY

Gulf Production Co.'s No. 12 Hagen-Moore ....Drlg. 2,966 ft.
Orange Petroleum Co.'s No. 13 Chesson ....Drlg. 3,010 ft.

BATSON—HARDIN COUNTY

East Batson Oil Co.'s No. 2 Gulf ....Comp. pumping 150 bbls. fluid; 8 bbls. oil 900 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 25 Moore ....Set one joint 4½-in. screen; sand 4,126-40 ft.; comp. flowing 698 bbls. fluid, 17 per cent water; gravity 26 degrees.

Gulf Prod. Co.'s No. 26 Moore ..... Set 14 ft. screen 4,026 ft.; comp. flowing 600 bbls. pipe line oil; gravity 27.4 degrees.

HULL—LIBERTY COUNTY

Houston Prod. Co.'s No. 15 Barngrover ..... Comp. flowing 250 bbls. oil 3,880 ft.

The Texas Company's No. 3 Barrow ..... Total depth 4,087 ft.; reaming.

PORT NECHES—ORANGE COUNTY

Gulf Prod. Co.'s No. 1 W. H. Starks ..... Drlg. sand 6,638 ft.
The Texas Company's No. 2 Starks ..... Drlg. shale and lime 5,729 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 4 Janner ..... Drlg. sandy shale 2,878 ft.
Sun Oil Co.'s No. 1 Freeman ..... Drlg. sandy shale 1,251 ft.
Sun Oil Co.'s No. 1 F. C. Marcus ..... Sandy shale 1,082 ft.; set 6⅝-in. csg. 976 ft.

SOUR LAKE—HARDIN COUNTY

The Texas Company's No. 307 fee ..... Hard shale 2,797 ft.; reaming to set csg.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds' No. 6 Davis ..... Drlg. 1,675 ft.
Cranfill-Reynolds' No. 9 Esperson ..... Sidetracking 2,035 ft.
Cranfill-Reynolds Oil Co.'s No. 17 Esperson ..... Drlg. sandy shale 3,300 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Vaydak (workover) ..... Total depth 7,592 ft.; cmtd. back to 3,690 ft.

Yount Lee Oil Co.'s No. 3 Moores Bluff ..... Total depth 7,592 ft.; sidetracked to oil sand 7,446-65 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 1 Ezzell ..... Drlg. hard sand 4,768 ft.
Gulf Prod. Co.'s No. 9 Boyt ..... Drlg. oil sand 4,000 ft.

WEST COLUMBIA—BRAZORIA COUNTY

The Texas Company's No. 30 Hogg (workover) ..... Drlg. shale 2,715 ft.

DE WALT—FORT BEND COUNTY

Humble Oil & Ref. Co.'s No. 11 Nelson ..... Drlg. hard sand 3,512 ft.

BOLING—WHARTON COUNTY

C. S. Thomas' No. 1 Volney ..... Rock 290 ft.

REFUGIO—REFUGIO COUNTY

Benedum & Trees' No. 1 Rooke (workover) ..... Cored water sand 6,515 ft.
Brookins et al's No. 1 Kay ..... Lime 4,320 ft.; shut down for repairs.
Houston Oil Co.'s No. 1 Rooke ..... Drlg. hard shale 4,987 ft.
Houston Oil Co.'s No. 2-A Fannie Heard ..... Cmtd. 10-in. csg. 1,330 ft.
Houston Oil Co.'s No. 1 Doughty ..... Standing 5,471 ft.
Houston Oil Co.'s No. 1 Tom Heard ..... Rigging up to deepen 5,470 ft.
Houston Oil Co.'s No. 1 O'Connor ..... Oil sand 5,872-5,913 ft.; drlg. 6⅝-in. plug 5,872 ft.
Houston Oil Co.'s No. 1-A Rose Lambert ..... Oil sand 5,901 ft.; cmtd. 6⅝-in. csg.
Independent Oil & Gas Co.'s No. 1 Rose Lambert ..... Oil sand 6,461 ft.; waiting orders.
Independent Oil & Gas Co.'s No. 6 Jerry Reilly (workover) ..... Sand and shale 7,618 ft.; plugged to gas sand 3,860 ft.
Independent Oil & Gas Co.'s No. 1 Mercy Academy, (workover) ..... Oil sand 6,423 ft.; cmtd. 6⅝-in. csg.
Edwin Jones' No. 1 Mitchell ..... Drlg. hard lime 4,350 ft.
Luling Oil & Gas Co.'s No. 1 Talman, Blk. 104 ..... Drlg. gumbo 5,524 ft.
Luling Oil & Gas Co.'s No. 1 J. W. Kay ..... Standing 4,928 ft.
Luling Oil & Gas Co.'s No. 1 West ..... Set screen 6,458 ft.
Mission Drilling Co.'s No. 1 Ben Shelton ..... Oil sand 6,445-50 ft.; cmtd. 4¾-in. csg.
Mission Drilling Co.'s No. 1 Moss-Heard, Blk. 11 ..... Drlg. salt water sand 7,953-57 ft.
Mission Drilling Co.'s No. 1 O'Brien (workover) ..... Standing 5,471 ft.
Mission Drilling Co.'s No. 1 Joe Shay ..... Sidetracking 5,150 ft.
Moody-Seagraves Prod. Co.'s No. 1 Linney, Blk. 41 ..... Shut down for repairs 4,333 ft.
Moody-Seagraves Prod. Co.'s No. 1 Linney, Blk. 42 ..... Standing shut in 4,880 ft.
Moody-Seagraves Prod. Co.'s No. 1 Rooke ..... Gumbo and shale 6,040 ft.; fishing drill stem.
Moody-Seagraves Prod. Co.'s No. 1-A St. John ..... Pulling liner to deepen.
Moody-Seagraves Prod. Co.'s No. 1 Strauch, Blk. 65 ..... Oil sand 6,451 ft.; cmtd. 8¼-in. csg. 6,444 ft.
Moody-Seagraves Prod. Co.'s No. 5 Morgan-O'Connor ..... Coring gas sand 5,749 ft.
Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor ..... Drlg. gumbo 450 ft.
Nichols Oil Co.'s No. 1 Wood ..... Shut down 1,400 ft.
Ed Price's No. 2 Mission River ..... Standing 3,665 ft.
Pearson Properties, Inc.'s No. 1 Hornburg ..... Derrick.
Royal Oil Co.'s No. 1 Hornburg (workover) ..... Oil sand 5,049 ft.; sidetracking.
Saxet Oil Co.'s No. 1 L. H. Johnson, Blk. 11 ..... Location.
Saxet Oil Co.'s No. 1 Fox heirs (workover) ..... Total depth 3,963 ft.; setting up larger rig.
Saxet Oil Co.'s No. 12 Clint Heard (workover) ..... Drlg. hard shale 5,802 ft.
Sun Oil Co.'s No. 3 Rea ..... Rig.
L. L. Smith's No. 1 Powers, Blk. 85 ..... Drlg. hard shale 5,531 ft.
L. L. Smith's No. 1 Rodgers ..... Derrick.
Union Producing Co.'s No. 11 Fannie Heard ..... Total depth 494 ft.; cmtd. csg. 482 ft.
Union Producing Co.'s No. 3 Fox ..... Drlg. sticky shale 1,324 ft.
Union Prod. Co.'s No. 5 Powers ..... Drlg. shale 1,700 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 1 H. J. Moss ..... Comp. flowing 45 bbls., 15 per cent water, ½-in. choke.
Union Sulphur Co.'s No. 2 Moss ..... Comp. estimated 5,000,000 ft. gas, 1,600 pounds pressure on ⅜-in. choke 5,290 ft.
Union Sulphur Co.'s No. 1 Martha Moss ..... Tested salt water 6,617 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 28 Miller ..... Total depth 5,180 ft.; sidetracking 5,147 ft.
Vacuum Oil Co.'s No. 30 Miller ..... Rig.
Vacuum Oil Co.'s No. 31 Miller ..... Location.
Vacuum Oil Co.'s No. 6 Bayou State ..... Drlg. sticky shale and lime 4,216 ft.
Yount Lee Oil Co.'s No. 1 Miller ..... Drill stem stuck 7,764 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 2 Landry ..... Derrick.
Calcasieu Oil Co.'s No. 1 State ..... Drlg. sand and lime 2,320 ft.
Calcasieu Oil Co.'s No. 21 Watkins ..... Oil sand 3,914-18 ft.; cmtd. 6⅝-in. csg. 3,909 ft.
Calcasieu Oil Co.'s No. 22 Watkins ..... Rig.
The Texas Company's No. 7 State ..... Heaving shale 4,920 ft.
Yount Lee Oil Co.'s No. 32 State Land ..... Drlg. water sand 3,500 ft.
Yount Lee Oil Co.'s No. 33 State ..... Spudded.
Yount Lee Oil Co.'s No. 34 State ..... Location.
Yount Lee Oil Co.'s No. 35 State ..... Derrick.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 9 Housierre Latrielle ..... Drlg. sand 8,031 ft.

VINTON—CALCASIEU PARISH

Emerson-Moore's No. 1 Gray (workover) ..... Temporarily shut down 3,406 ft.
Edgerly Pet. Co.'s No. 2 McLean ..... Sand 3,597 ft.; sidetracking 3,150 ft.
Gulf Refining Co.'s No. 69 G.&N.G. (workover) ..... Drlg. 3,300 ft.
Gorbat Oil Co.'s No. 1 Clement Lyons ..... Set csg. 3,900 ft.
Lucky Ten Oil Co.'s No. 1 Lizzo ..... Shut down 3,326 ft.
Vinton Pet. Co.'s No. 2 Gray (workover) ..... Total depth 3,132 ft.; pulling screen to deepen.
Vinton Petroleum Co.'s No. 10 Gray ..... Milling out lost bit 2,826 ft.
Wilson-Broach's No. 3 Wilson (workover) ..... Cutting and fishing for 3-in. strainer set in well at 3,622 ft.
Wilson-Broach's No. 4 Wilson ..... Comp. flowing 800 bbls. fluid, 20 per cent water.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 1 Woodyard Lake ..... Fishing drill stem 6,085 ft.
Rycade Oil Corp.'s No. 4 State ..... Drlg. 3,850 ft.

STARKS—CALCASIEU PARISH

Gulf Ref. Co.'s No. 25 Lutcher-Moore ..... Total depth 1,241 ft.; cap rock; pulling screen to deepen.
I. O. Davis' No. 1 Industrial ..... Drlg. sandy shale 6,185 ft.
Pure Oil Co.'s No. 10 Yount Lee ..... Rigging up.

SORRENTO—ASCENSION PARISH

Gulf Ref. Co.'s No. 7 United Land Co. (workover) ..... Total depth 1,630 ft.; to workover.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 10 Yount Lee ..... Rig.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe ..... Drlg. shale 3,559 ft.
O'Hara et al's No. 1 Schrader ..... Shut down for fuel 1,794 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. ..... Drlg. sand 7,304 ft.
The Texas Company's No. 1 J. H. Murdock, Fresno ..... Drlg. shale and lime 4,416 ft.
Mills Bennett Prod. Co.'s No. 2 Reece, Allen ..... Rig.
Mills Bennett Prod. Co.'s No. 2 Random, Allen ..... Location.
Mills Bennett Prod. Co.'s No. 2 Allen ..... Drlg. shale and lime 4,851 ft.
Mills Bennett Prod. Co.'s No. 1 Poole (workover) ..... Pulling liner 4,373 ft.
Faust et al's No. 5 Faust ..... Drlg. shale 5,471 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights ..... Total depth 4,261 ft.; sidetracking 2,430 ft.
Freeport Sulphur Co.'s No. 1 Stratton ..... Cap rock 1,320 ft.
Freeport Sulphur Co.'s No. 1 Tolar, Stratton Ridge ..... Rig.
Layne et al's No. 7-A Wisdom, Damon Mound ..... Drlg. gumbo and lime 1,620 ft.
Rycade Oil Corp.'s No. 2 Seaburn, Stratton Ridge ..... Drlg. sandy shale 2,467 ft.
Steel & Strickland's No. 1 Lockbridge ..... Spudded and shut down.
United Oil Syndicate's No. 1 Moores, Francis Moore Sur. ..... Abandoned 1,450 ft.
Union Oil Syndicate's No. 1 Speer, A. A. Talmage Sur. ..... Rig.

CALHOUN COUNTY

The Texas Company's No. 1 Thomas, J. P. Tilley Sur. ..... Drlg. sticky shale 5,956 ft.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Total depth 3,950 ft.; sidetracking 3,906 ft.
Shell Pet. Corp.'s No. 2 Herff, Moss Bluff ..... Drlg. hard shale and lime 4,952 ft.
Pure Oil Co.'s No. 1 J.E.K. Ranch, Oyster Bayou ..... Abnd. in sand and shale 6,738 ft.

GRIMES COUNTY

Deering et al's No. 1 Munker, Darius Gregg Sur. ..... Drlg. shale and shell 2,975 ft.
Deering & Noble's No. 1 Templeton, 6 miles south of Navasota ..... Shut down 3,500 ft.

HARDIN COUNTY

D. O. Speight's No. 1 fee, near Batson ..... Shut down 2,857 ft.

HARRIS COUNTY

Gulf States Oil Co.'s No. 1 Angsperger ..... Drlg. shale and lime 2,356 ft.
Humble Oil & Ref. Co.'s No. 8 Warren, Hockley ..... Drlg. anhydrite 4,894 ft.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa ..... Rig.
Golden State Oil Co.'s No. 1 McDade, N. Brady Sur. ..... Drlg. shale and lime 3,776 ft.
W. C. Turnbow et al's No. 1 Miller, Arthur McCormick Sur. ..... Drlg. shale 891 ft.

JACKSON COUNTY

Jackson County Oil Syndicate's No. 8 Drushell, Edna ..... Gas sand 3,866-70 ft.; cmtd. 6⅝-in. csg. 3,864 ft.
Wright Bros.' No. 2 Lee ..... Drlg. sandy shale 3,886 ft.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur. ..... Location.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234 ..... Location.
The Texas Company's No. 4 Pipkin, Big Hill ..... Drlg. shale and lime 2,578 ft.

LIBERTY COUNTY

Gulf Prod. Co.'s No. 2 McFaddin, Moss Bluff ..... Set two joints screen 5,847 ft. comp. flowing 1,050 bbls. on ½-in. choke.
Hamm et al's No. 1 Harvard, Davis Hill ..... Location.
Humble Oil & Ref. Co.'s No. 1 Breeding, Moss Bluff ..... Drlg. shale and lime 5,192 ft.
Humble Oil & Ref. Co.'s No. 1 Orlando Hylton, Moss Bluff ..... Drlg. shale 6,203 ft.
Humble Oil & Ref. Co.'s No. 1 Sergent, Moss Bluff ..... Drlg. hard sand and lime 4,606 ft.
Rycade Oil Corp.'s No. 1 Heiskell ..... Drlg. sand and shale 5,342 ft.

MATAGORDA COUNTY

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott ..... Drlg. shale and lime 3,707 ft.
Empire Gas & Fuel Co.'s No. 1 Baker, Citrus Grove ..... Drlg. shale and lime 5,497 ft.

MONTGOMERY COUNTY

Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe ..... Shut down 1,350 ft.
Price & Whitehead's No. 2 Guerges ..... Shut down 2,956 ft.

NACOGDOCHES COUNTY

E. L. Burke et al's No. 1 Latimer, Jose De Los Santos Sur. ..... No report.

REFUGIO COUNTY

Blanco Oil Co.'s No. 1 Dorman ..... Shut down 3,120 ft.

SAN JACINTO COUNTY

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Rig.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 McFaddin, C. O. Edwards Sur. ..... Drgl. sandy shale 4,444 ft.
The Texas Company's No. 1 McFaddin, E. Bonny Sur. ..... Drlg. shale 5,578 ft.
Lion Oil & Ref. Co.'s No. 2 McFaddin, M. Traviers Sur. ..... Drlg. sandy shale 6,359 ft.
Newton et al's No. 1 West ..... Shut down 1,550 ft.

SOUTH LOUISIANA

ASSUMPTION PARISH

Gulf Ref. Co.'s No. 2 Dugas & Le Blanc, Sec. 41-12s-13e ..... Location.
H. H. Given's No. 1 Hudgins, near Hungerford ..... Drlg. gumbo 580 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Drlg. sand and gravel 215 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Derrick.
R. E. Seiss' No. 1 Vincent, Sec. 30-12s-10w ..... Drlg. sand and gumbo 459 ft.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.

CAMERON PARISH

Shell Pet. Corp.'s No. 15 Watkins, Black Bayou ..... Set screen 4,402 ft.
Shell Pet. Corp.'s No. 1 State, Black Bayou ..... Total depth 5,200 ft.; set screen 5,175 ft.; comp. flowing 943 bbls., 9% wash water, first 24 hrs., 3-in. choke, 2-in. tubing; gravity 26.2 degrees.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Total depth 5,240 ft.; sidetracking 4,776 ft.
The Texas Company's No. 6 State, Calcasieu Lake ..... Cap rock 1,978 ft.; fishing drill stem.

IBERIA PARISH

The Texas Company's No. 6 Vermillion Bay ..... Location.

IBERVILLE PARISH

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou ..... Spudded.
Shell Pet. Corp.'s No. 5 Wilbert, White Castle ..... Drlg. sand and lime 3,727 ft.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 8 Wilbert, Bayou Des Glaise ..... Drlg. sand and shale 3,634 ft.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue ..... Drlg. sandy shale 4,037 ft.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue ..... Bldg. derrick.

JEFFERSON PARISH

Humble Oil & Ref. Co.'s No. 1 Delaware, Sec. 2-16s-23e ..... Drlg. sandy shale 6,166 ft.

JEFFERSON DAVIS PARISH

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w ..... Derrick.

LA FOURCHE PARISH

The Texas Company's No. 1 L.L.&E., Leesville ..... Total depth 5,616 ft.; fishing.

PLAQUEMINE PARISH

Gulf Ref. Co.'s No. 2 Buras Levee Board ..... Location.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille ..... Drlg. sand and gravel 1,057 ft.
The Texas Company's No. 4 State, Garden Island ..... Fishing drill stem 4,414 ft.
The Texas Company's No. 5 State, Garden Island ..... Location.

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Uncle Sam, Sec. 28-11s-4e ..... Set screen 1,834 ft.; trying to put on air.

ST. MARTIN PARISH

The Texas Company's No. 3 Iberville Land ..... Location.
The Texas Company's No. 4 St. Martin, Hager ..... Derrick.
The Texas Company's No. 5 St. Martin, Hager ..... Derrick.

ST. MARY PARISH

The Texas Company's No. 1 South Coast, Sec. 41-14s-10e ..... Abnd. in sandy shale; no showing; 7,851 ft.

ST. TAMMANY PARISH

Washington-St. Tammany's No. 2 Caussack, Sec. 5-6s-10e ..... Total depth 310 ft.; gumbo; to resume drlg.

TERREBONNE PARISH

Louisiana Gas & Fuel Co.'s No. 9 Minor, Houma ..... Set 12¼-in. casing 1,224 ft.
The Texas Company's No. 1 L.L.&E., Bay St. Elaine ..... Location.
The Texas Company's No. 5 State, Bay St. Elaine ..... Derrick.
The Texas Company's No. 4 State, Caillou Island ..... Location.
The Texas Company's No. 5 State, Caillou Island ..... Drlg. hard sand and lime 3,862 ft.
The Texas Company's No. 6 State, Bay St. Elaine ..... Location.
The Texas Company's No. 3 State, Dog Lake ..... Drlg. sand 5,161 ft.
The Texas Company's No. 4 La. L. & E., Four Isle ..... Drlg. sticky shale 5,882 ft.
The Texas Company's No. 2 La. L. & E., Bay Junop ..... Drlg. lime rock 5,532 ft.
The Texas Company's No. 6 State, Lake Pelto ..... Derrick.
The Texas Company's No. 5 State, Lake Barre ..... Oil sand 3,805-27 ft.; comp. flowing 67 bbls. hourly on ½-in. choke; pressure 437 pounds; oil gravity 27.8 degrees.
The Texas Company's No. 6 State, Lake Barre ..... Driving piling.
The Texas Company's No. 7 State, Lake Barre ..... Building derrick.
The Texas Company's No. 8 State, Lake Barre ..... Driving piling.
The Texas Company's No. 9 State, Lake Barre ..... Location.

WEST FELICIA PARISH

Putnam Syndicate's No. 1 Como Plantation, Sec. 51-1s-4w ..... Total depth 3,738 ft.; fishing stuck drill stem.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 52)

(Rotary operations unless otherwise designated.)

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6 ..... Began drlg. Oct. 16; cmtd. 12-in. 157 ft.

CLAIBORNE PARISH

Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W, SE cor. NE, Sec. 30-20-7 ..... S.D. 2,200 ft.
Baugh et al's No. 1 Alexander, 330 ft. S, 330 ft. W, NE cor., Sec. 27-20-8 ..... S.D. 2,200 ft.

CONCORDIA PARISH

A. C. Glassell's No. 1 Pecania Plantation, 25 ft. S, 25 ft. W, NE cor. irregular Sec. 46-8-9 ..... Location.
A. C. Glassell's No. 1 Pittsfield Plantation, N 9° E, 1,320 ft., SW cor., Sec. 41-8-10 ..... Drlg. sandy shale 1,869 ft.
Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e ..... Drlg. 3,090 ft.

DE SOTO PARISH

Ark.-La. P. L. Co.'s No. 2 Johnson, 1,980 ft. N, 1,320 ft. W, SE cor., Sec. 1-11-14 ..... Began drlg. Oct. 18; cmtd. 10-in. 210 ft.
J. W. Clark's No. 1 Tidwell, 250 ft. S, 250 ft. E, NW cor. NW, Sec. 22-13-14 ..... Cmtd. 6⅝-in. 2,910 ft; to test 12-ft. sand; T.D. 2,933 ft.
S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S, NW cor. NE, Sec. 31-14-14 ..... S.D; sandy shale 1,354 ft.
Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11 ..... S.D. 1,060 ft.
Holly Oil Co.'s No. 1 Talbot (was Philp et al's), 220 ft. S, 730 ft. W, NE cor. NW NE, Sec. 9-13-13 ..... Drlg. chalk 1,493 ft.
Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15 ..... Drlg. shale 1,140 ft.
Odell & Lawton's No. 1 Tidwell-Tull, 300 ft. N, 600 ft. E, SW cor. NW, Sec. 11-13-14 ..... Cmtng. bottom; T.D. 3,004 ft.

OUACHITA PARISH

C. W. Frierson's No. 1 Haynes, 1,297 ft. N, 906 ft. W, SE cor., Sec. 9-17-3 ..... Drlg. chalk 2,762 ft.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... S.D. 3,600 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10. Fishing 2-in. liner; T.D. 1,290 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10. Drlg. 1,060 ft.

RED RIVER PARISH

Lucky Strike Oil Co.'s No. 1 Chaffraix, 300 ft. S, 200 ft. E, C, Sec. 33-12-10 ..... Fishing D.S; T.D. 2,820 ft.
T. G. Shaw's No. 1 Wilkerson, 460 ft. N, 200 ft. W, SE SE, Sec. 4-12-10 ..... Cmtd. 6-in. 2,240 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Location.
W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-7 ..... Derrick.
Island Gas Co.'s No. 1 Noe, 1,902 ft. N, 660 ft. W, SE cor., Sec. 3-16-5 ..... Top Monroe gas rock 2,365 ft; bailed dry 2,419 ft. and 2,460 ft; D.S. test 2,479 ft., 2,509 ft. and 2,539 ft; S.W; S.D; gumbo 2,-549 ft.

SABINE PARISH

Boone, trustee's No. 1 Turner, 40 ft. N, 140 ft. W, SE cor. NW NW, Sec. 4-7-11 ..... Rig up.
Tom David's No. 1 Smith, 460 ft. N, 200 ft. W, SE cor. SE SE, Sec. 27-8-10 ..... Cmtd. 10-in. 110 ft; drlg. 787 ft.
Eylers O. & G. Co.'s No. 1 Frazier, 330 ft. S, 330 ft. W, NE cor. NW SW, Sec. 10-8-11 ..... Derrick.
Franks et al's No. 1 Dew, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11 ..... Drlg. 1,000 ft.
Lacey et al's No. 1 Brown Lbr. Co., C NW NE, Sec. 28-8-10 ..... Rig up.
Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11 ..... Top marl 2,395 ft; cmtd. 6-in. 2,-385 ft; T.D. 2,407 ft; (C.D.).
Lohman & Walker's No. 1 Hubley, 330 ft. N, 330 ft. W, SE cor. SE NE, Sec. 21-7-11 ..... Top marl 2,461 ft; cmtd. 6-in. 2,-465 ft.
Lohman et al's No. 1 Wyatt Lbr. Co., 150 ft. S, 330 ft. E, NW cor. NE SW, Sec. 18-4-11 ..... Rig up.
Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-13 ..... Rig up.
Loring Oil Co.'s No. 13 Bowman-Hicks, 340 ft. N, 220 ft. W, SE cor. SW SE, Sec. 2-7-12 ..... Began drlg. Oct. 18; cmtd. 10-in. 105 ft; drlg. 380 ft.
Loring Oil Co.'s No. 1 Garner, 370 ft. N, 300 ft. E, SW cor. NW NE, Sec. 4-7-11 ..... Bailing to test; T.D. 2,550 ft.
Magnolia Pet. Co.'s No. 1 Glauque, 484 ft. N, 390 ft. E, SW cor. NW SW, Sec. 26-7-14 ..... D.S. test 3,666-93 ft; 1 joint mud, 2 joints S.W; arranging to deepen.
McDaniel's & Lieber's No. 2 Batson, 480 ft. S, 220 ft. E, NW cor. SW SE, Sec. 16-8-12 ..... S.D. 2,136 ft; waiting for 6-in.
Merritt et al's No. 1 La. Long Leaf Lbr. Co., S½ NE, Sec. 33-8-11 ..... Drlg. 1,450 ft.
C. D. Neff, trustee's No. 1 Turner, 1,170 ft. S, 180 ft. W, NE cor. NW, Sec. 4-7-11 ..... Arranging test 2,595 ft.
Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12 ..... Cmtd. 6-in. 2,310 ft.
Pelican Nat. Gas Co.'s No. 5 La. Long Leaf Lbr. Co., 200 ft. S, 200 ft. W, NE cor. NW SW, Sec. 4-7-11. Coring 2,250 ft.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Made 30-ft. hole 3,280-3,310 ft; S.D.
H. T. Stacey et al's No. 1 Polly, NE cor. NE NE, Sec. 18-8-12 ..... Rig up.
The Texas Co.'s No. 1 Largent, 365 ft. E, 315 ft. N, SW cor., Sec. 24-8-12 ..... Cmtd. 6⅝-in. 2,308 ft; bailing csg.
Toteco Oil Co.'s No. 1 La. Long Leaf Lbr. Co., 325 ft. S, 100 ft. W, NE cor. NW, Sec. 18-6-12 ..... Cmtd. 6⅝-in. 2,984 ft; T.D. 4,-077 ft.
Wilson & Son's No. 1 Ganby-Garrett, NW SW, Sec. 4-5-12 (portable rig) ..... Drlg. 1,050 ft.

TENSAS PARISH

Stoval Drlg. Co.'s No. 1 Miller, NE SW, Sec. 18-10-10... Plugged back to 692 ft; cmtd. 6-in. 700 ft. to test gas show; old T.D. 1,560 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... D.S. test 2,730 ft; S.W. and show gas; W.O; T.D. 2,780 ft.

WEBSTER PARISH

Coyle trustees' No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11 ..... Derrick.

WEST CARROLL PARISH

Ark.-La. P. L. Co.'s No. 1 Griffith, 660 ft. S, 660 ft. W, NE cor. NE NW, Sec. 17-22-10 ..... Drlg. 2,380 ft.

ARKANSAS

CHICOT COUNTY

H. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3 ..... Reaming 2,892 ft; T.D. 2,900 ft.

CLAY COUNTY

S. C. Jeffries, trustee's No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-8 ..... Cmtd. 10-in. 303 ft.

CLEBURNE COUNTY

Cosden Oil Co. of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE, Sec. 19-9-10 ..... Fishing tools 4,360 ft.
Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. repairing rig; T.D. 3,410 ft.

COLUMBIA COUNTY

J. W. Olvey et al's No. 1 Kate George, 200 ft. N, 245 ft. E, SW cor. NW SW, Sec. 29-18-20 ..... Rigging up.

GARLAND COUNTY

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-8-19 ..... Waiting on bailing line; T.D. 3,-790 ft.

HOT SPRINGS COUNTY

Anisman et al's No. 1 Hinson est., NE NE, Sec. 19-4-16. Reaming at 1,330 ft.
John Watkins' No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16... Rig up.

LAFAYETTE COUNTY

McIver et al's No. 1 Hottle, NW cor. NE, Sec. 1-20-6.... Derrick.

LINCOLN COUNTY

B. F. Thompson, trustee's No. 1 McGhee, 330 ft. S, 150 ft. W, C, Sec. 8-8-7 ..... Rigging up.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32.... S.D. 2,502 ft.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... U.R. 5 3/16-in. 3,570 ft; T.D. 3,-610 ft.

MADISON COUNTY
(Cable tools)

J. W. Baxter's No. 2 Hallem, C, Sec. 17-16-26 ..... Drlg. shale 200 ft.

MILLER COUNTY

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33.14-26 Derrick.
East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26 ..... 2-ft. sand 888 ft. dry; S.D; W.O. 890 ft.
E. & F. Oil Co.'s No. 1 E. L. Beck; 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26 ..... D.S. test 2,804 ft; 500 bbl. S.W.; 10 bbls. oil; coring 2,810 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26 ..... Began drlg. Oct. 13; cmtd. 10-in. 93 ft.
Lenz et al's No. 2 Johnson, SE cor., Sec. 24-15-16 ..... D.S. test 2,920 ft; S.W., mud and oil; arranging cmt. 6⅝-in.
Salzer & McRae's No. 1 Rose, SW cor. NE NW, Sec. 9-16-26 ..... Began drlg. Oct. 11; cmtd. 10-in. 98 ft.

OUACHITA COUNTY

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17. Tested S.W. 2,730 ft; top red beds 2,760 ft; reaming to bottom; T. D. 2,836 ft.
Copenhaven et al's No. 1 Elliott, Sec. 11-15-17..... Cmtd. 10-in. 62 ft.
C. W. Fierson's No. 1 Haynes, 1,297 ft. N, 906 ft. W, SE cor., Sec. 9-17-3 ..... Top Monroe gas rock 2,462 ft; D. S. test 2,433 ft; failed; cmtd. 6-in; T.D. 2,466 ft.
Graves Bros.' No. 1 Walker, 350 ft. N, 280 ft. E, SW cor., Sec. 9-14-18 ..... Small S.O. 1,861 ft; tested dry; cored sandy shale 1,861-73 ft; arranging test.
A. B. Turner, trustee's No. 1 Dave Brown, 220 ft. N, 220 ft. E, SW cor., Sec. 23-15-18 ..... D.S. test 2,172-78 ft; 55 ft. mud; T.D. 2,183 ft.

PHILLIPS COUNTY

Mahon interests' No. 1 Mannheimer (no check), Sec. 15-1s-1e ..... Began drlg. Sept. 30; drlg. 200 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... Drlg. 1,270 ft.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21 ..... Cmtd. 15½-in. 240 ft; drlg. 1,-520 ft.

SCOTT COUNTY

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 27-5-30.. Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26..... Fishing tools 1,530 ft.

SEBASTIAN COUNTY

Lavaca O. & G. Co.'s No. 1 Davis, C NW NE, Sec. 29-8-30. Derrick.

UNION COUNTY

S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17 ..... S.D. 2,575 ft.
H. L. Hunt's No. 1 Swilly, 330 ft. S, 330 ft. W, NE cor., Sec. 28-16-16 ..... Drlg. 2,475 ft.
Marine Oil Co.'s No. 2-B Thompson, Sec. 10-18-13..... Location.
Marine Oil Co.'s No. 1-F Winn, Sec. 10-18-13..... Hole full fluid 50% S.W; waiting on air; T.D. 3,604 ft.
Modisette Drlg. Co.'s No. 4 Union Sawmill, 330 ft. W, 300 ft. N, SE cor., Sec. 14-18-14 ..... Location.
Oil Field Corp.'s No. 1 Simmons, 330 ft. S, 330 ft. E, NW cor., Sec. 13-18-13 ..... Drlg. 2,230 ft.

VAN BUREN COUNTY

Glenn Kohle et al, trustee's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY
(Cable tools)

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32..... S.D; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30..... U.R. 5 3-16-in. 1,665 ft; T.D. 1,-697 ft.
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32. U.R. 8-in. to T.D. 1,500 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29 S.D. for csg. 1,165 ft; (C.D.).

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21..... Fishing tools 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Joe Burnham et al's No. 1 G. W. Burnett, 150 ft. W, 400 ft. S, NE cor. G. W. Burnett 76 ac., in W. H. Janes Sur. ..... Reaming to bottom; T.D. 2,070 ft.
Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardige 100-ac. tract on Floyd Merritt tract in Y. S. McKinney Sur. ..... Derrick.
Lee Timberlake's No. 1 Tidwell, 2,800 ft. N, 300 ft. W, SE cor., Jos. Eskell Sur. ..... S.D; W.O. 3,202 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr., in J. H. Murphy Sur. ..... Location.

CASS COUNTY

Phillips Pet. Co.'s No. 1 J. R. Olds, 300 ft. N, 170 ft. E, SW cor., J. A. Stephenson Sur. ..... Rig up.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... Coring 1,960 ft.

MARION COUNTY

W. D. Chew's No. 1 fee, 2,350 ft. W, 1,275 ft. N, SE cor., W. J. Hamilton Sur. ..... Coring lime 3,230 ft.
P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur. ..... Drlg. gumbo 1,740 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,865 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... Swedging 2 jts. collapsed 8-in; arranging to cmt. 6⅝-in. and packer 2,182 ft.

SABINE COUNTY

Benedum & Trees Oil Co.'s No. 1 Nona Mills Lbr. Co., Jas. Mason Sur. ..... Drlg. sandy shale 3,825 ft.

SHELBY COUNTY

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .. T.A. hard lime 3,350 ft.
G. R. Ridgeway's No. 1 G. D. Parker, 4,980 ft. E, 750 ft. N, SW cor., Jessie McKelvey Sur. ..... Began drlg. Sept. 28; cmtd. 12½-in 512 ft., 10-in. 570 ft; trying to kill S.W. flow 600 ft.

MISSISSIPPI
ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e. Fishing 6-in. and tools 2,392 ft; T.D. 2,735 ft.

ATTALA COUNTY

K. A. March's No. 1 H. A. Moore, 500 ft. W, 330 ft. S, NE cor. SE NW, Sec. 2-15-5e ..... Derrick.

CLAY COUNTY

Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5 ..... Drlg. 1,620 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3 ..... Driving 8¼-in. to 1,495 ft; T.D. 1,436 ft.

GRENADA COUNTY

F. E. West et al's No. 1 Dubard, NW NW, Sec. 18-22-4.. Derrick.

HINDS COUNTY

Attkison & Dyers' No. 1 Wiggins, Sec. 33-6-1e ..... Derrick.
Big Block Oil Co.'s No. 1 Southern Christian Institute, C N½ NE, Sec. 30-6-4 ..... S.D. 1,910 ft.
Cane River O. & G. Co.'s No. 1 Kubbles, NE cor. SW SW, Sec. 15-5-1e ..... Rig up.
Hawkeye Gas Co.'s No. 1 Webster, NW cor. NE NW, Sec. 15-5-1e ..... Cmtd. 6⅝-in. 2,474 ft; on top chalk.
Jackson Oil Co.'s No. 1 Central Cotton Oil Co., NW cor., SW NW, Sec. 3-5-1e ..... Rig up.
Jackson O. & G. Co.'s No. 1 Capital Land & Inv. Co., Sec. 29-6-1e ..... Drlg. 2,179 ft.
Dr. Barney Kennedy's No. 1 fee, 150 ft. E, 200 ft. N, SW cor. NE NE, Sec. 34-6-1e ..... Location.
Love Pet. Co.'s No. 1 Maley, SE cor. NW, Sec. 15-5-1e.. Top Midway 2,387 ft; top chalk 2,487 ft. and cmtd. 6⅝-in; claim oil show estimated 10 bbls., 12° gravity clean oil, no gas 2,487-2,490 ft; flowed 25 bbls. oil and 300 bbls. wtr. 105 F; T.D. 2,494 ft.
Love Pet. Co.'s No. 1 Morton Lbr. Co., 1,500 ft. E, 1,525 ft. N, SW cor., Sec. 34-6-1e ..... Rig up.
Miss. Pet. Co.'s No. 1 Baptist Orphanage, 175 ft. E, 130 ft. N, SW cor. SE SE, Sec. 23-6-1e ..... Waiting for csg; T.D. 2,475 ft.
Miss. Pet. Co.'s No. 1 Solvent Inv. Co., NE cor. NE SW SW, Sec. 14-5-1w ..... S.D. 2,710 ft.
Miss.-Tex. Oil Co.'s No. 1 Negro Fair Assn., SW cor. NW SE, Sec. 28-6-1e ..... Cmtd. 6⅝-in. 2,479 ft.
Mrs. Reeder et al's No. 1 State, SE cor. NW NW, Sec. 25-6-1e ..... W.O; T.D. 2,905 ft.
Tri-State O. & G. Co.'s No. 1 Wilson, SW cor. SE NE, Sec. 23-6-1e ..... Derrick.
Universal Gas Co.'s No. 1 Sharbrough, SW cor. SE, Sec. 28-6-1e ..... Began drlg. July 29; S.D; W.O. 88 ft.

HUMPHRIES COUNTY

E. S. Steele et al's No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w ..... Set 12½-in. 60 ft; S.D.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keys, C NW NE, Sec. 21-2-10 ..... Derrick.

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E, NW cor. NE, Sec. 2-7-16 ..... Tested S.W. 3,252 ft; S.D. 3,420 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 3-16-14 ..... Derrick.

LAFAYETTE COUNTY

Banks-Good et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w ..... Derrick.

LINCOLN COUNTY

Lincoln O. & G. Co.'s No. 1 Pat Case, NE cor. NE, Sec. 21-3-6 ..... S.D; W.O. 2,231 ft.

MADISON COUNTY

Barney Kennedy et al's No. 1 Raymond, 300 ft. E, 1,800 ft. N, SW cor., Sec. 32-7-2e ..... Cmtd. 12½-in. 706 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... Resumed operations Oct. 2; recovered lost baller; S.D; W.O. 3,007 ft.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19 ..... Shot 2,402-18 ft; small S.O; arranging to shoot 2,387-95 ft.
Associated Oil Co.'s No. 1 School, SW cor. SW SE, Sec. 16-15-17 ..... Began drlg. Aug. 26; S.D. 32 ft.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19 ..... S.D. 30 ft.

RANKIN COUNTY

R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.. S.D. 900 ft.
Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e... Derrick.
Love Pet. Co.'s No. 1 Moore (was Interior Oil Co.'s), 660 ft. N, 660 ft. W. SE cor. NW NW, Sec. 28-6-2e.. S.D. 900 ft.
Sabine O. & G. Co.'s No. 1 Taylor, SE cor. SW NE, Sec. 6-5-2e ..... Rig up.
Gulf Ref. Co.'s No. 1 Hamilton, 1,320 ft. N, 1,320 ft. E, SW cor., Sec. 12-5-1e ..... Began drlg. Oct. 3; cmtd. 12½-in. 810 ft; drlg. 1,150 ft.
Jackson Royalties, Inc.'s No. 1 Pate, NE cor. NE SE, Sec. 12-5-1e ..... Began drlg. Oct. 5; cmtd. 12½-in. 280 ft; drlg. shale 2,120 ft.
Cleve Love et al's No. 1 Brown, C NW SE, Sec. 12-5-1e.. Began drlg. Oct. 9; drlg. 1,200 ft.
Pearl River O. & G. Co.'s No. 2 Pate, SE cor. SW SE, Sec. 12-5-1e ..... Began drlg. Oct. 7; cmtd. 10-in. 292 ft.

WARREN COUNTY

Raymond A. Moore et al's No. 1 Clark, SE, Sec. 31-16-5 (no check) ..... Derrick.
Vicksburg Oil Co.'s No. 1 Dornbush, 2,080 ft. S, 1,520 ft. W, NE cor., Sec. 8-18-5 ..... Began drlg. Sept. 21; drlg. 1,000 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-13-14. Began drlg. Oct. 5; cmtd. 12½-in. 173 ft; drlg. 300 ft.

YALOBUSHA COUNTY

Carter Oil Co. and J. W. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, Sec. 14-11-4 ..... Fishing junk 2,260 ft; T.D. 2,436 ft.

YAZOO COUNTY

Amerada Pet. Corp.'s No. 1 Doherty, SW SW, Sec. 24-12-2 Drlg. sandy lime 5,133 ft.

ALABAMA
LAMAR COUNTY

Griggs & Knapp's No. 1 Wefel, Sec. 25-12-14 ..... T.A. 1,740 ft.

LAUDERDALE COUNTY

A. D. Morton et al's No. 10 O'Neal est., Sec. 8-2s-13w.... Cmtd. 12½-in. 125 ft; drlg. hard lime 905 ft.

MARION COUNTY

Hobson et al's No. 1 John Clark, SE, Sec. 29-11-14.. ..... Derrick pattern.

WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2 ..... S.D; W.O; flow at 1,450 ft.
S. A. Hobson's No. 1 Wilson, Sec. 27-7-1 ..... Fishing baller; T.D. 881 ft.
Oscar Brown's No. 2 Land & Cotton Co., Sec. 25-3-2w.... Drlg. 700 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 52)

(Rotary operations unless otherwise designated.)

CADDO PARISH—HOSSTON

Bayou State Oil Corp.'s No. 4 Barr, 350 ft. W, 595 ft. S, NE cor. SE SW, Sec. 30-22-15 ..... Began drlg. Oct. 15; cmtd. 10-in. 42 ft; drlg. 900 ft.

CADDO PARISH—OIL CITY

The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16 ..... Location.
The Texas Co.'s No. 74 Levee Board, 1,600 ft. S, 200 ft. W, NE cor., Sec. 33-21-16 ..... Derrick.
The Texas Co.'s No. 75 Levee Board, 2,450 ft. S, 224 ft. W, NE cor., Sec. 33-21-16 ..... Derrick.

CADDO PARISH—PINE ISLAND

Shreveport Oil Corp.'s No. 1-A Muslow, 150 ft. S, 150 ft. E, NW cor., Sec. 32-21-15 ..... Cmtd. 4½-in. 2,126 ft.

CLAIBORNE PARISH—SUGAR CREEK

Triangle Drlg. Co.'s No. 1 Brownfield, 660 ft. S, 660 ft. E, NW cor. NE, Sec. 6-19-5 ..... Drlg. 2,560 ft.
Triangle Drlg. Co.'s No. 1 J. W. Stevenson, 670 ft. N, 665 ft. W, SE cor. SW SE, Sec. 6-19-5 ..... Drlg. 2,550 ft.
Standard Oil Co.'s No. 4-A Farmer, 330 ft. S, 330 ft. E, NW cor. NE NW, Sec. 5-13-13 ..... Drlg. 2,219 ft.

DE SOTO PARISH—HOLLY

Standard Oil Co.'s No. 4-A Farmer, 330 ft. S, 330 ft. E, NW cor. NE NW, Sec. 5-13-13 ..... Cored sand arch 2,832-61 ft; no show.

LA SALLE PARISH—URANIA

Montugu Oil Co.'s No. 9 Zenoria Lbr. Co., 660 ft. W, 200 ft. S, NE cor., Sec. 10-9-1e ..... Location.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4 ..... Location.
Grecian Bend Gas Co.'s No. 1 J. D. Sandidge et al, 600 ft. W, 1,980 ft. N, SE cor. NE, Sec. 2-20-4 ..... Location.
Industrial Gas Co.'s No. 3 Sandidge, 560 ft. N, 660 ft. E, SW cor. SE, Sec. 15-20-4 ..... Location.
Texas-La. Prod. Co.'s (was Moody-Seagraves Gas Co.'s) No. 1 Fisher, 660 ft. E, 3,814 ft. N, SW cor., Sec. 34-21-5 ..... Drlg. 2,085 ft.
Ouachita Nat. Gas Co.'s No. 2 Cole, 660 ft. S, 613 ft. W, NE cor., Sec. 13-20-4 ..... Cmtd. 6-in. 2,149 ft.

OUACHITA PARISH

Industrial Gas Co.'s No. 4 fee, 1,334 ft. N, 652 ft. W, SE cor., Sec. 2-19-3 ..... Location.
Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4 ..... Location.
Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4 ..... Rig up.
Pipe & Mack's No. 2 Union Gas Products Co., 296 ft. W, 528 ft. N, SE cor. SW, Sec. 7-18-5 ..... Location.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 ..... Location.

RICHLAND PARISH

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 ..... Rig moved; derrick.
Franklin O. & G. Co.'s No. 1 Thompson, 660 ft. N, 165 ft. W, SE cor. NE, Sec. 14-16-6 ..... Location.
Hope Prod. Co.'s No. 1 Thomason, 1,980 ft. N, 660 ft. E, SW cor., Sec. 14-16-6 ..... Location.
La. G. & F. Co.'s No. 1-A Noble, 1,320 ft. N, 580 ft. W, SE cor. NE, Sec. 35-16-5 ..... Location.
Palmer Corp.'s No. 1-B Boykin, 177 ft. S, 787 ft. E, C, Sec. 33-17-6 ..... Cmtd. 9-in. 878 ft; drlg. 1,335 ft.
Palmer Corp.'s No. 12 Rhymes-England, 1,320 ft. W, 660 ft. N, SE cor. NW, Sec. 33-17-6 ..... Began drlg. Oct. 16; cmtd. 12½-in. 164 ft; 9-in. 907 ft.
Palmer Corp.'s No. 13 Rhymes-England, 561 ft. W, 66 ft. N, SE cor., Sec. 29-17-6 ..... Rig up.
Southern Carbon Co.'s No. 1 J. A. Clements, 1,320 ft. S, 1,980 ft. W, NE cor., Sec. 10-16-6 ..... Rig up.
Southern Carbon Co.'s No. 1-B Hale, 1,320 ft. N, 660 ft. E, SW cor., Sec. 15-16-6 ..... Location.
Southern Carbon Co.'s No. 1 G. Harris, 10 ft. S, 660 ft. W, NE cor., Sec. 10-16-6 ..... Cmtd. 6-in. 2,285 ft.
Southern Carbon Co.'s No. 1-C Hemler, 1,164 ft. S, 888 ft. W, NE cor., Sec. 14-16-6 ..... Location.
Southern Carbon Co.'s No. 2-C M. L. McCoy, 1,880 ft. N, 5,024 ft. E, SW cor., Sec. 1-16-6 ..... Tested dry 2,491 ft; W.O.
Southern Carbon Co.'s No. 1-D M. and M. McCoy, 1,980 ft. S, 660 ft. W, NE cor., Sec. 30-16-6 ..... Location.
Southern Carbon Co.'s No. 7 F. B. and E. A. Sartor, 2,540 ft. S, 660 ft. E, NW cor., Sec. 17-16-7 ..... Location.
Southern Carbon Co.'s No. 1-C Thomason, 1,980 ft. N, 1,400 ft. W, SE cor., Sec. 14-16-6 ..... Cmtd. 8-in. 862 ft; drlg. 2,320 ft.
United Carbon Co.'s No. 1 Boughton, 3,244 ft. E, 4,693 ft. N, SW cor., Sec. 1-16-6 ..... Drlg. 2,320 ft.
United Carbon Co.'s No. 1 J. A. Hemler, 660 ft. W, 66 ft. N, SE cor., Sec. 5-16-6 ..... Derrick.
United Carbon Co.'s No. 2 C. M. Noble, 805 ft. W, 1,498 ft. N, common cor. Secs. 7, 8 and 37-15-16 in Sec. 37.. Derrick.
United Carbon Co.'s No. 1 L. Williams, 1,980 ft. S, 1,980 ft. W, NE cor., Sec. 33-16-6 ..... Drlg. 2,290 ft.

SABINE PARISH—PLEASANT HILL

F. A. Bartlett, Jr.'s No. 1 Logan, 200 ft. S, 200 ft. E, NW cor., Sec. 27-10-12 ..... S.D. 2,400 ft.
A. C. Glassell's No. 1 Logan Oil Co., 300 ft. E, C, Sec. 23-10-13 ..... Drlg. chalk 1,354 ft.

SABINE PARISH—ZWOLLE

Tom Davis' No. 1 Holliday (was T. D. Allison's), Sec. 31-8-12, Zwolle townsite ..... S.D. wtr. 1,350 ft.
F. M. Hood's No. 1-B Winston (was No. 2), 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle townsite.... S.D. 1,065 ft.
Dixie Oil Co.'s No. 1 Parrott, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 26-8-12 ..... D.S. test 2,450 ft; dry.
Dixie Oil Co.'s No. 1 Tatum, 330 ft. N, 330 ft. E, C, Sec. 26-8-12 ..... Cmtd. 6-in. 2,334 ft.
R. L. Gay's No. 1 Peterson (was Posey et al's), Blk. 16, Zwolle townsite, Sec. 31-8-12 ..... Top marl 2,150 ft. and cmtd. 6⅝-in.
Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12 ..... Rig up.
Lacey Burkett Co.'s No. 1 Danna, 316 ft. E, 200 ft. S, C, Sec. 26-8-12 ..... W.O.S.R. full oil; T.D. 2,404 ft.
Loring Oil Co.'s No. 1 Middleton, 200 ft. E, 200 ft. S, NW cor. NE SE, Sec. 26-8-12 ..... Cmtd. 6⅝-in. 2,329 ft.
Loring Oil Co.'s No. 2 Middleton, 330 ft. W, 175 ft. S, NE cor. NE SE, Sec. 26-8-12 ..... Location.
Loring Oil Co.'s No. 2 Sabine Lbr. Co., 1,430 ft. E, 340 ft. N, C, Sec. 34-8-12 ..... 100 ft. oil in hole; W.O.S.R; T.D. 2,600 ft.
Lyon et al's No. 1 Neely (was No. 1 Williams), 330 ft. N, 330 ft. W, SE cor. SW SE, Sec. 32-8-11 ..... Dry 2,300 ft. and 2,440 ft; whipstocked csg. at 2,024 ft.
Pelican Nat. Gas Co.'s No. 5 Sabine Lbr. Co., 330 ft. S, 330 ft. E, NW cor. NW NE, Sec. 11-7-12 ..... Cmtd. 12½-in. 105 ft; drlg. 1,240 ft.

Pugh-Hickman Drlg. Co.'s No. 1 Sabine Lbr. Co., 350 ft. N, 350 ft. E, SW cor. NW NE, Sec. 34-9-12.....Cmtd. 6-in. 2,298 ft.
Standard Oil Co.'s No. 1 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor. SW NW, Sec. 25-8-12.....Location.
Tarver et al's No. 4 Sabine State Bank, 220 ft. W, 270 ft. N, C, Sec. 26-8-12.....Cmtd. 6⅝-in. 2,324 ft.
C. H. Teat et al's No. 1 Craig, 300 ft. N, 300 ft. E, SW cor. NE NE, Sec. 25-8-12.....Began drlg. Sept. 27; cmtd. 10-in. 97 ft; top marl and cmtd. 6-in. 2,310 ft.
Wheatcroft et al's No. 1 Sabine Lbr. Co., SW NE, Sec. 31-8-12 .....S.D. 2,495 ft.

SABINE PARISH—BLUE LAKE

R. L. Gay's No. 8 Bowman-Hicks, Sec. 18-7-13.....Recmtd. back to 2,392 ft; old T.D. 2,552 ft.
R. L. Gay's No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 18-7-13.....Rig up.

UNION COUNTY

Bahan & Bahan's No. 2 Tanner, 3,300 ft. N, 1,980 ft. W, SE cor., Sec. 19-22-4.....Cmtd. 12-in. 180 ft; 8-in. 794 ft.
Greenwood Prod. Co.'s No. 5 Norsworthy, 1,320 ft. S, 1,999 ft. E, NW cor., Sec. 9-21-3.....Cmtd. 6-in. 2,043 ft.
E. S. Hall's No. 5 Edwards, 1,980 ft. E, 600 ft. N, SW cor., Sec. 14-20-3 .....Location.
Industrial Gas Co.'s No. 5 Grayling Lbr. Co., 660 ft. E, 660 ft. S, NW cor. NE, Sec. 28-21-4.....Cmtd. 6-in. 2,069 ft.
Interstate Nat. Gas Co.'s No. 1 J. M. Edwards, 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-21-3.....Drlg. 2,190 ft.
Ouachita Nat. Gas Co.'s No. 1 Smith, 2,152 ft. N, 708 ft. E, SW cor., Sec. 20-20-4.....Location.

WEBSTER PARISH—SAREPTA AND SHONGALOO

Liggett et al's No. 2 Slack, 720 ft. E, 150 ft. N, SW cor. SE SE, Sec. 36-23-11.....S.D. 2,618 ft.
Magnolia Pet. Co.'s No. 3 Denman, 369 ft. S, 513 ft. W, NE cor. NE NW, Sec. 1-22-11.....Rig up.
Magnolia Pet. Co.'s No. 2 Gardner, 100 ft. S, 145 ft. W, NE cor. SE NW, Sec. 1-22-11.....W.O.S.R. 2,738 ft.

ARKANSAS
JOHNSON COUNTY

Ark.-La. P. L. Co.'s No. 1 Hudson et al, 660 ft. N, 545 ft. E, SW cor. SE NE, Sec. 14-10-24.....Drlg. 640 ft.
Ark.-La. P. L. Co.'s No. 1 Mattie Kelly, 330 ft. S, 657 ft. E, NW cor. SW SW, Sec. 14-10-24.....Drlg. hard sand 2,480 ft.
Conn Grabble's No. 1 Hoeing, 720 ft. N, 590 ft. W, SE cor., Sec. 20-9-5.....S.D. 2,238 ft.

OUACHITA COUNTY—SMACKOVER

L. H. Hamilton's No. 3 Doyle, 100 ft. E, 400 ft. N, SW cor. SE SE, Sec. 23-15-16.....Began drlg. Sept. 24; cmtd. 10-in. 40 ft; S.D.
W. J. Thomas' No. 1 Usserey & Arnold, 200 ft. N, 200 ft. W, SE cor. NW, Sec. 36-15-15.....S.D; repairing rig; 1,966 ft.

SEBASTIAN COUNTY

Mansfield Gas Co.'s No. 14 fee, Lot 10, Sec. 1-4-31.....Drlg. hard sand 1,550 ft.
Ozark Nat. Gas Co.'s No. 10 Weaver, 660 ft. N, 660 ft. W, SE cor. SE NE, Sec. 27-8-30.....Straightening hole; T.D. 2,640 ft.
Ozark Nat. Gas Co.'s No. 1 Bates, C SE NW, Sec. 28-8-30.Test est. 5,000,000 ft. gas; drlg. 2,990 ft.

UNION COUNTY—CHAMPAGNOLLE

Lin Oil Ref. Co.'s No. 1 Sullivan, 330 ft. N, 330 ft. W, SE cor. SE NW, Sec. 12-17-14.....Derrick.
Ohio Oil Co.'s No. 10 Crain, 330 ft. S, 330 ft. W, NE cor. SE SW, Sec. 1-17-14.....Derrick.
Ohio Oil Co.'s No. 4 R. Pumphrey, 330 ft. S, 330 ft. W, NE cor. NE NW, Sec. 12-17-14.....Cmtd. 6⅝-in. 2,976 ft; 2 ft. sand 2,986 ft.

UNION COUNTY—EL DORADO

Malloy & Co.'s No. 7 Burns, SW cor. NW NW, Sec. 31-17-15 .....Drlg. in 2,150 ft.
Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15.....Reported abd. 92 ft. Apr. 30, 1930; arranging to resume drlg.
Weisinger & Boll's No. 8 Goodwin, 175 N, 150 ft. E, SW cor. NE NW, Sec. 6-18-15.....Began drlg. Oct. 17; cmtd. 10-in. 156 ft; drlg. 1,000 ft.

UNION COUNTY—SMACKOVER

J. E. Crosbie, Inc.'s No. 1 G. L. Murphy, 300 ft. N, 300 ft. W, SE cor. SW NW, Sec. 13-16-16.....D.S. test 2,692-2,701 ft; dry; cmtd. 6⅝-in. 2,735 ft; D.S. test 3 fourbles fluid 2,730-40 ft; 5-ft. sand.

EAST TEXAS
HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur. .....Location.
Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur. .....S.D. brown chalk 3,520 ft.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 2-A G. W. Brumble, 477 ft. W, 473 ft. S, NW cor. Jno. Womack Sur., in B. C. Jordan Sur. .....Drlg. lime 3,542 ft.
W. G. Banks et al's No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. .....Location.
S. E. Bell et al's No. 1 Burnett Lbr. Co., C. S. B. Hendricks Sur. .....Cmtd. 8⅝-in. 2,047 ft.
Creighton and Hart's No. 1 Greeny-Kyle, C. Greeny-Kyle 60 ac., Jas. Tippett Sur. .....Base chalk 1,998 ft; D.S. test 2,148-2,223 ft. dry; top Blossom 2,216 ft; drlg. broken lime 2,-2,540 ft; drlg. 2,814 ft.
Knox et al's No. 1 Dunham (was Jackson et al's), 150 ft. W, 150 ft. N, SE cor. M. I. Dunham 29 ac., in Chas. Haley Sur. .....S.D; W.O. 2,605 ft. lime.
Nat. Gas Products Co.'s No. 8 Roguemore.....O.W.D.D; coring sandy lime 4,-655 ft.
Doris Thomason's No. 15 Crenshaw, 1,992 ft. S, 2,305 ft. E, SW cor., Jno. Womack Sur. in B. C. Jordan Sur...Derrick.

MISSISSIPPI
RANKIN COUNTY

Gulf Ref. Co.'s No. 1 Hamilton, 1,320 ft. N, 1,320 ft. E, SW cor., Sec. 12-5-1e.....Drlg. 2,620 ft.
Jackson Royalties, Inc.'s No. 1 Pate, NE cor. NE SE, Sec. 12-5-1e .....Cmtd. 6⅝-in. 2,379 ft.
Cleve Love et al's No. 1 Brown, C NW SE, Sec. 12-5-1e..Cmtd. 6⅝-in. 2,356 ft.
Dr. S. D. Raymond's No. 1 Graves, 1,810 ft. N, 3,210 ft. W, SE cor., Sec. 12-5-1e.....Derrick.

OKLAHOMA FIELDS

(Continued from Page 42)

leum Co.'s No. 1, in the NE cor., Section 27-6-3, is a new location. The Mid-Continent Petroleum Corp.'s No. 1 Archer, SW cor. SE, Section 14-6-3, in the north part of the Wanette Pool, made 595 bbls. in 4½ hours from sand at a total depth of 3,610 feet. Under the proration agreement the well will be allowed to produce 600 bbls. a day.

The second well completed in the new area southeast of the East Earlsboro Pool, was the Gypsy Oil Co.'s No. 1 Pompey, SW cor. SE NW, Section 29-9-6. It swabbed 192 bbls. in five hours from the Wilcox sand at 4,114-36 feet. The well is expected to be shot and the owners estimate the well to be a 2,000-bbl. producer after a shot. Another test nearing the Wilcox sand horizon is the Amerada Petroleum Corp. and Dixie Oil Co.'s No. 1 Morris, NW cor. NE SW. Section 29-9-6, which has been swabbing around 135 bbls. of oil a day from the Simpson at 4,073-4,114 feet. The discovery well drilled by the Amerada Petroleum Corp. in Section 29-9-6, is still making around 2,000 bbls. a day.

The Beebe Field which has been quiet for some time had two completions during the week. Dixie Oil Co.'s No. 1 Haynes, in Section 32-5-5, Pontotoc County, swabbed and flowed 150 bbls. in 24 hours from the Hunton lime at 2,-433-80 feet. Superior Oil Corp.'s No. 8 Mauldon, SE cor. NW NW, Section 32-5-5, topped Simpson sand at 2,770 feet and the oil at 2,779-81 feet. The well swabbed 75 bbls. in 24 hours. It was drilled deeper to 2,798 feet, and the hole filled up with water.

Oklahoma City Field

The completions in the Oklahoma City Field during the week were as follows: Tom Slick Oil Co. and others' No. 1 Rodman, SW cor. NW SW Section 2-11-3w, flowing 147 bbls. of gasoline in three hours from sand at 6,223-6,572 feet. Same operator's No. 1 Trumbley, NW cor. NE SW Section 2-11-3w, made 173 bbls. of gasoline through a 1-inch bean, from sand at 6,315-6,556 feet. The gas volume was estimated at 60,000,000 feet a day. Indian Territory Illuminating Oil Co.'s No. 3 M.-K.-T., SE cor. SW SW Section 35-12-3w, flowed 3,136 bbls. in eight hours from sand at 6,210-6,397 feet. Same operator's No. 3 Viewpoint, NW cor. SW SE Section 10-11-3w, flowed into the slush pit and the operators picked up 434 bbls. of oil. The sand was found at 6,350-6,500 feet. Same operator's No. 4 Pasadena Heights, SE cor. SE SW Section 14-11-3w, flowed 12 bbls. in 15 minutes and was shut in, from sand at 6,280-6,507 feet. The gas volume was estimated at 125,000,000 feet a day. Phillips Petroleum Co.'s No. 1 Rollins, SW cor. NW SW Section 2-11-3w, flowed 1,173 bbls. in six hours from sand at 6,270-6,337 feet. The gas was estimated at 83,000,000 feet. Same operator's No. 1 Ciger, SE cor. SW NW Section 2-11-3w, flowed 3,819 bbls. in 2 hours and 10 minutes from sand at 6,224-6,340 feet. The gas was estimated at 76,000,000 feet a day. British-American Oil Co.'s No. 1 Echroat, SE cor. NW Section 10-11-3w, flowed 5,253 bbls. in one hour and three-quarters from sand at 6,331-6,532 feet. The gas volume was estimated at 45,000,-000 feet. Wrightsmith and others' No. 2 Smith, SE cor. NW SW Section 2-11-3w, made 267 bbls. in 13½ hours from sand at 6,205-6,495 feet. Government Oil Co.'s No. 1 Wilson, NE cor. NW Section 14-11-3w, made 440 bbls. of gasoline in 24 hours from sand at 6,200-6,520 feet. The gas volume was estimated at 120,-000,000 feet a day. Sinclair Oil & Gas Co.'s No. 2 School Land, NW cor. NE SW Section 36-11-3w, made 1,269 bbls. in one hour from sand at 6,565-6,700 feet. The gas was estimated at 39,000,000 feet. Anderson-Prichard Oil Corp.'s No. 5 Gibbons, NE cor. SW NE Section 2-11-3w, made 740 bbls. in four hours from sand at 6,120-6,500 feet. Indian Territory Illuminating Oil Co.'s No. 2 Spillman, NE cor. NW SE Section 14-11-3w, made 2,444 bbls. in eight hours from sand at 6,170-6,460 feet. Wirt Franklin Petroleum Corp.'s No. 1 Page-Tucker, SW cor. SE Section 35-12-3w, made 1,792 bbls. in eight hours from sand at 6,265-6,527 feet. Anderson-Prichard Oil Corp.'s No. 1 Gibbons, SE cor. NE Section 2-11-3w, made 1,149 bbls. in four hours from sand at 6,115-6,491 feet.

The following wells which have been shut in in the Oklahoma City Field taking their proration time were opened during the week and will be allowed to produce under the regular proration orders:

Company, lease—	No.	Bbls.*	Hrs.
I T. I. O.:			
Boulevard	1	891	14
Huffman	1	3,015	24
Hemmer	1	1,340	18
Ferndale	4	5,966	5
Capshaw	3	740	15
Habegger	2	3,036	18
H. W. Jones	3	15,885	18
W. Franklin:			
Lowery	9	8,756	16½
Cromwell:			
Trosper	25	960	2
Trosper	27	187	¼
Sinclair:			
School land	5	8,808	6
Slick:			
Page	2	1,090	5
Atkinson	1	11,340	18
Trumbley	1	2,611	18
Hall & Briscoe:			
Holmes	3	7,201	9
Holmes	2	4,032	6
Prairie:			
Sigmon	7	2,565	16½
Julian:			
Hauser	1	3,600	†
Skelly:			
Dillon	2	4,640	12
Mabee:			
Harvey	1	675	3
Jones:			
Townlot	1	10,000	†
Total		97,338	

*Initial production. †Estimated.

Oklahoma City Oil Shipments

The total shipments from the Oklahoma City Field for the week ending October 20 were 632,870 bbls. The daily average shipments by companies were as follows:

Company—	Dly. av. bbls.
Empire	20,248
I. T. I. O.	2,066
Magnolia	8,185
Oklahoma	13,177
Prairie	14,656
Stanolind	22,027
Sinclair to storage	1,465
Shell	492
Tidal	1,612
Century	3,701
Peveto & Peacock	1,238
Gulf States	1,543
Total	90,410

Greater Seminole Production

The Greater Seminole production for the week ending October 20 follows:

Pool—	Wells	Bbls.
Little River	371	24,205
E. Little River	85	11,740
Carr City	68	8,981
Maud	135	3,665
Mission	94	7,262
Bowlegs	278	14,186
Earlsboro	283	21,400
S. Earlsboro	27	9,344
E. Earlsboro	156	17,794
Seminole	259	13,980
E. Seminole	33	2,113
Searight	86	6,835
Allen	274	13,848
Asher	26	1,082
Wanette	39	8,704
Konawa	101	17,597
St. Louis	482	22,859
Sasakwa	51	4,856
Total	2,848	210,451

Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area total 187,201 bbls. for the week ending October 20. The daily average from the various pools were as follows:

Company—	Seminole (bbls.)	Asher, Pearson, St. Louis (bbls.)	Konawa (bbls.)
Barnsdall	2,647	.....	.....
Champlin	4,402	.....	482
Consolidated	.....	2,886	5,158
Cosden	7,024	.....	.....
Deep Rock	2,737	395	.....
Empire	3,568	.....	.....
Gulf	18,566	1,189	913
Independent	.....	1,280	.....
Magnolia	7,212	6,523	.....
Oklahoma	19,319	159	135
Prairie	14,297	4,319	3,943
Prod. & Ref.	1,040	.....	.....
Pure	5,077	.....	.....
Shell	4,601	492	922
Stanolind	27,438	6,510	3,567
Texas	7,183	2,954	2,493
Tidal	9,776	3,569	.....
White Oak	561	.....	.....
Total	135,453	30,276	17,613
Tank cars	2,736	1,133	.....
Grand total	138,189	31,409	.....

Oklahoma City Production

The following wells were on production in the Oklahoma City Pool during the seven days ending October 20, under the proration orders. All other completed wells were shut in and will be produced when the shut-in time is completed.

	S.T.R.	No. Well	Bbls.
Anderson-Prichard:			
Gibbons	1-11-3w	2	20
Graham	2-11-3	1	Off
Habegger	14-11-3	1	159
Key	2-11-3	1	272
Orphanage	2-11-3	1	Off
Pest House	2-11-3	2	99
Roosevelt Place	2-11-3	5	429
Wilson-Carpenter	2-11-3	1	Off
Brown et al	14-11-3	1	Off
British American:			
Eckroat	10-11-3	1	751
Blackwell:			
Clemer	10-11-3	1	Off
Blackwell-Jones Drlg.:			
Sullivan	1-11-3	1	681
Century:			
Barr	10-11-3	1	913
Jefferson	2-11-3	1	1,889
Wyatt	2-11-3	1	568
Champlin:			
McCulip	2-11-3	1	Off
Naden	2-11-3	1	Off
Coline:			
Clour	25-11-3	16	1,926
Olds	24-11-3	10	Off
Warren	18-11-2	8	197
Continental:			
Sudik	6-10-2	3	203
Cromwell-Franklin:			
T. Park	13-11-3	29	4,824
Denver P. & R.:			
Harvey	15-11-3	1	Off
Gant-Garvin:			
Harris	2-11-3	1	Off

(Continued on Next Page)

	S.T.R.	No. Well	Bbls.
Olafson	2-11-3	1	550
Hall & Briscoe:			
Holmes	10-11-3	4	3,067
Lindsey	14-11-3	3	1,117
Mueller	2-11-3	1	294
Heenan & Coe:			
Cunningham	1-11-3	2	1,671
I. T. I. O.:			
Banta	18-11-2	1	23
Barker, Drake	14-11-3	1	Off
Bod. Anderson	30-11-2	3	Off
Bodine, A.	24-11-3	6	418
Bodine, S.	30-11-2	3	131
Borden	23-11-3	1	Off
Brokaw, A.	13-11-3	4	7
Brokaw, C	13-11-3	4	590
Butterfield	11-11-3	1	Off
Button	19-11-2	5	323
Canfield, L.	19-11-2	2	9
Canfield, Butt	19-11-2	3	284
Capshaw	23-11-3	1	Off
Carrico	14-11-3	5	Off
Coppinger	11-11-3	8	Off
Corff	11-11-3	5	185
Drake	14-11-3	2	626
Eacock	11-11-3	2	Off
Emmerson, N.	30-11-2	11	1,580
Emmerson, Joyce	25-11-3	2	Off
Farley, E.	24-11-3	1	Off
Farley, L.	19-11-2	4	816
Farley, Fuzzell	19-11-2	2	782
Ferndale, Comm.	11-11-3	4	492
Fortson, E.	24-11-3	3	23
Fortson, Farley	24-11-3	3	48
Foster	24-11-3	1	Off
Foster, Worley	24-11-3	1	Off
Funk	11-11-3	1	Off
Fuzzell, M.	19-11-2	3	18
George	7-11-2	1	12
Habegger	14-11-3	2	Off
Hammer	11-11-3	2	Off
Handl	11-11-3	1	Off
Hiddleston, S.	19-11-2	1	309
Holmes-Gray	14-11-3	1	Off
Huffman	14-11-3	1	Off
Ivanhoe	15-11-3	1	Off
Jennings	13-11-3	3	Off
Johnson	25-11-3	9	252
Jones, H. W.	1-11-3	4	Off
Jones	31-11-2	14	1,744
Jones, Comm.	1-11-3	4	Off
Knox, May	14-11-3	4	414
K. Henning	24-11-3	3	16
Lawrence Place	15-11-3	2	390
Lawton	11-11-3	1	4
Lemmon	11-11-3	2	403
Mackey	26-11-3	1	Off
Magnolia Heights	14-11-3	1	279
Mid-Texas	23-11-3	1	Off
M.K.&T.	35-12-3	2	747
Mt. Vernon Heights	15-11-3	1	Off
Oklahoma City	24-11-3	1	109
Okla. State land	36-11-3	7	2,418
Pasadena Heights	14-11-3	2	1,544
Peterson, Sad	25-11-3	8	1,656
Phelans	15-11-3	1	Off
Phillips	1-11-3	1	Off
Precure	11-11-3	1	413
Precure, E.	11-11-3	2	Off
Rensimer	14-11-3	1	Off
Reynolds	6-10-2	2	Off
Salasman	32-11-2	5	241
Spanagle	15-11-3	1	138
Speegle et al	24-11-3	3	484
Spillman	14-11-3	2	Off
Starkey	11-11-3	2	Off
Sudik	31-11-2	11	5,887
Theimer, E.	12-11-3	7	67
Thom. Fuzzell	13-11-3	3	131
Trosper	13-11-3	10	Off
Trosper, Clar.	14-11-3	4	Off
Trosper, C. E.	11-11-3	1	Off
Trosper, E.	14-11-3	2	Off
Trosper, H. G.	14-11-3	5	1,254
Trosper, L.	12-11-3	2	Off
Trosper, P.	18-11-2	1	Off
Trosper, Hughes	11-11-3	1	222
Unsell, M.	23-11-3	6	382
Unsell-Krager	23-11-3	3	432
Verne	13-11-3	2	Off
Viewpoint	10-11-3	1	618
Warden, M.	24-11-3	1	Off
Waters	23-11-3	6	674
Warner, Farley	23-11-3	3	Off
Wheeland	10-11-3	1	449
Wheeler	13-11-3	3	165
Wilkie-Anderson	25-11-3	3	Off
Williams	23-11-3	1	Off
Williamson, Can.	24-11-3	2	Off
I.T.I.O. et al:			
Boulevard Addition	14-11-3	1	108
Julian:			
Houser	14-11-3	1	142
Shepard	14-11-3	1	Off
Walker	10-11-3	1	Off
Mabee:			
Rusty	10-11-3	1	Off
Schilling	10-11-3	1	Off
Marco:			
Holder	2-11-3	1	Off
Mid-Kansas:			
Browning	18-11-2	2	115
Fortson	24-11-3	5	80
Mollman	23-11-3	4	607
Trosper-Browning	18-11-2	1	Off
Trosper, D. P.	19-12-1	1	192
Mid-Kansas-Ramsey:			
Messer	32-14-3	1	359
Mid-Texas:			
Community	1-11-3	1	Off
Minnehoma:			
Pugh	2-11-3	1	Off
Oils, Inc.:			
Moreland	2-11-3	1	243
Ross	2-11-3	1	90
Phillips:			
Harrell	2-11-3	1	Off
Traders	36-12-3	1	Off
Carey	2-11-3	1	Off
Day	2-11-3	1	150
Jones	1-11-3	1	212
Rallen	2-11-3	1	188
Velt	2-11-3	1	Off
Phillips-Sinclair:			
Hatcher	10-11-3	1	495
Lybrand	2-11-3	1	Off
Plains:			
Saddler	12-11-3	1	Off
Schilling	10-11-3	1	Off
Plains-Denver:			
Whitten	14-11-3	1	400
Prairie-Slick:			
Hiddleston	19-11-2	8	393
Sigman	32-11-2	7	99
Reynolds, W. R.:			
Hastings	1-11-3	1	1,213
Shaffer, J. C.:			
Childs	14-11-3	1	377
Shaffer, J. C., et al:			
Jones, Comm.	1-11-3	1	601
Vinita Park	2-11-3	1	839
Shell:			
Egermeir	23-11-3	1	193
Petty	30-11-2	7	73
Sinclair:			
School Land No. 54	36-11-3	16	7,399
School Land No. 67	36-11-3	4	1,506
Stamper	30-11-2	6	4
Vencel	31-11-2	16	12,175
Donnell	23-11-3	1	Off
School Land No. 69	36-11-3	1	Off
Sinclair-Amerada:			
Kinter	30-11-2	10	25
Skelly:			
Dunn	1-11-3	1	1,288
Skelly et al:			
Dillon	2-11-3	2	Off
Ainsworth	10-11-3	4	Off
Hurt	2-11-3	1	Off
Hoops	31-11-2	8	902
Tanner	10-11-3	2	477
Slick, T. B.:			
Bailey	1-11-3	1	491
Campbell	3-11-3	1	Off
Classen	2-11-3	3	280
Classen-Edwards	3-11-3	1	Off
Daugherty	2-11-3	1	Off
Dean	10-11-3	1	Off
Foote	2-11-3	2	760
Frost, C. G.	10-11-3	1	Off
Frost Heights	10-11-3	4	68
Gleason	1-11-3	1	Off
Glidden	13-11-3	2	36
Harrison	10-11-3	1	Off
Martin	1-11-3	1	467
Moore	2-11-3	1	Off
Rodman	2-11-3	1	250
Thornton	15-11-3	1	Off
Trumbley	2-11-3	1	213
Wilson	2-11-3	1	Off
Slick, T. B., et al:			
Alexander	2-11-3	2	Off
Atkinson	1-11-3	2	Off
Baker	1-11-3	5	Off
Crawford	1-11-3	1	1,482
Danruther	2-11-3	3	67
Dunivan	1-11-3	1	Off
Page	14-11-3	2	53
Houghton	1-11-3	1	1,559
Key	2-11-3	2	173
Miller	2-11-3	1	Off
Milner	1-11-3	2	Off
Storie	2-11-3	1	Off
Townsend	1-11-3	1	424
Zerkerle	13-11-3	1	Off
Carter	1-11-3	1	Off
Hoops	31-11-2	8	1,039
Hussman	29-11-2	1	Off
Slick-I.T.I.O.:			
Dennis	11-11-3	1	Off
Huddleston	14-11-3	1	207
Houston	2-11-3	1	Off
Wirt Franklin:			
Birg	2-11-3	1	Off
Eacock	11-11-3	1	1,575
Holder	2-11-3	2	Off
Lowery	12-11-3	10	4,283
Page	35-12-3	4	Off
Theimer	2-11-3	12	1,002
Theimer-Butt	11-11-3	1	Off
Wright	2-11-3	3	Off
Wright-Smith:			
Smith	2-11-3	1	121
Total		609	93,116

Bryan County

M. A. Neff and others' No. 1 Farris, C S half S half, Section 29-6s-7, is drilling at 300 feet.

Beckham County

Carson and other's No. 1 Denby, SW cor. SE NE, Section 20-8-22w, has been abandoned at 1,558 feet.

Caddo County

Magnolia Petroleum Co.'s No. 8 Lindsey, NE cor. NW SE, Section 36-6-10w, is an old well cleaning out to deepen from 3,366 feet.

Carter County

Magnolia Petroleum Co. has the rig up for No. 2 M. Dickerson, SW cor. SE NE, Section 24-1s-3w. Carter Oil Co.'s No. 2 J. Franklin, SW cor. NE NE, Section 24-1s-3w, has been completed for 1,232 bbls. in sand 1,871-1,916 feet and broken sand 2,017-61 feet. Anderson and others' No. 5 Evans, NW cor. NE SW, Section 24-1s-3w, made 1,965 bbls. from sands and broken sands 2,293-2,512 feet. Magnolia Petroleum Co.'s No. 4 Hooks, NE cor. SW NE, Section 24-1s-3w, has been completed for 780 bbls. in sands 1,966-2,120 feet. No. 4 W. S. Spigner, NE cor. SE NW, Section 24-1s-3w, has been completed for 635 bbls. in sands 2,236-2,427 feet. Clark & Cowden and Ven Mex Petroleum Co.'s No. 1 Muller, SW cor. NE, Section 29-1s-3w, has been abandoned at 4,246 feet.

Creek County

Indian Territory Illuminating Oil Co. moved a machine in for No. 3 Hinton, NE cor. SW SW, Section 25-19-8. J. H. Wright estate's No. 1-A McKellop, NE cor. SE SW, Section 23-17-10, is drilling at 990 feet. L. A. Carpenter has the rig up for No. 6 Cloud, SW cor. NE SW, Section 22-17-11. Jackson & Wise's No. 9 Folsom, CNL NE NE, Section 9-16-11, is a rig. Thompson & Penrod's No. 1-A Perryman, NW cor. SE, Section 1-14-11, is a rig. The Prairie Oil & Gas Co. made location for No. 3 Bryden, NW cor. SW, Section 31-15-8. C. O. Buckles' No. 1 Grayson, SE cor. SW, Section 11-19-9, has been completed for 90 bbls. in sand 1,189-1,223 feet. Phillips Petroleum Co. and Gled Oil Co.'s No. 5 Carter, SW cor. NE SE, Section 20-19-9, made 120 bbls. from sand 2,160-2,208 feet. Beal & Plumb and others' No. 1 Peen, SW cor. SE SW, Section 23-18-9, has been abandoned at 2,803 feet. J. H. Winemiller's No. 1-A Sapulpa, SW cor. SE, Section 33-18-11, is dry and abandoned at 1,980 feet. Lynch and others' No. 1-A Brown, NE cor. SW NW, Section 4-18-12, is dry and abandoned at 2,295 feet. Bryan Petroleum Co.'s No. 2 Taconey, SE cor. NW SW, Section 3-17-10, has been abandoned at 2,668 feet. Murphy and others' No. 2 Baker, NW cor. NE NE, Section 14-17-10, has been abandoned at 2,004 feet.

Hughes County

Gilcrease Oil Co. has a machine on the location for No. 1 Deere, NE cor. SW, Section 20-6-9.

Lincoln County

O. H. Parkening and H. H. Watts and others' No. 1 Grant, NW cor. NE, Section 32-17-4, is a location. Atlantic Oil Producing Co.'s No. 1 Ryan, SE cor. NW, Section 5-14-6, has been abandoned at 4,675 feet.

Marshall County

Bilbo Oil Corp.'s No. 16 Taliferro, NE cor. NW NE SE, Section 14-5s-5, Madill Pool, is drilling at 60 feet. J. C. Doss and others moved a machine in for No. 1 Taliaferro, NW cor. SW NE, Section 4-6s-6. Goddard Oil Co.'s No. 1 Marshall, SE cor. SW NE, Section 8-6s-6, has been abandoned at 752 feet.

McIntosh County

Gaines Creek Gas Co.'s No. 1 Smith, SE cor. NE, Section 5-8-16, is drilling at 430 feet.

Muskogee County

Bradley and others' No. 1 Sango, SW cor. SE, Section 12-15-17, an old well, is preparing to deepen. Western D. & E. Co.'s No. 2 S. Murrell, SW cor., Section 4-15-18, is a machine. Patton and others moved a machine in for No. 1 Robinson, NE cor. SW, Section 30-15-19. Art Deegan and others' No. 1 Musgrove, C SE SW, Section 7-12-19, is spudding.

Oklahoma County

Blackwell Oil & Gas Co. and Jones Drilling Co.'s No. 1 Garr-Cain, NW cor. SE NW SE, Section 35-12-3w, Oklahoma City Field, is a rig. Wood Brothers' No. 1 Johnson, SW cor. NE SW SW, Section 2-11-3w, is a cellar. Phillips Petroleum Co. made location for No. 1 Sam, NE cor. SW SE NE, Section 3-11-3w. Johnson & Dabney's No. 1, Block 33, Lot 7, South Hyland Addition, CEL NW SE NE, Section 10-11-3w, is a rig. Dingeil Oil Co. has the rig up for No. 1, Block 14, Lot 9, Patterson Addition, NW cor. SE NE, Section 10-11-3w. F. C. Hall has the cellar dug for No. 1 Kelsey, SW cor. SE SW NW, Section 10-11-3w, Block 2, Lot 34, Eggleston Addition. Indian Territory Illuminating Oil Co.'s No. 3 M.K.&T., SE cor. SW SW, Section 35-12-3w, has been completed for 3,136 bbls. in eight hours from sand 6,210-6,387 feet. Anderson & Prichard's No. 1 Orphanage, NE cor. SE NW, Section 2-11-3w, had sand 6,290-6,564 feet and made 2,650 bbls. Century Petroleum Co.'s No. 1 Jefferson, CSL NW NE NE, Section 2-11-3w, flowed 16,178 bbls. in 16 hours from sand 6,334-6,409 feet. Ghant-Garvin's No. 1 Olafson, NE cor. NW SW SW, Section 2-11-3w, has been completed for 3,842 bbls. in eight hours from sand 6,271-6,525 feet. Thomas B. Slick Oil Co. and Atkinson's No. 2 Key, NW cor. SE SW, Section 2-11-3w, made 930 bbls. in eight hours, producing from sand 6,385-6,558 feet. Indian Territory Illuminating Oil Co. and others' No. 1 Wheeland, SE cor. NW NE NE, Section 10-11-3w, had sand 6,445-6,552 feet and produced 7,225 bbls. in 16 hours.

Thomas B. Slick Oil Co.'s No. 1 Frost, SE cor., Section 10-11-3w, has been completed in sand 6,455-6,521 feet, gauging 2,404 bbls. in 16 hours. Indian Territory Illuminating Oil Co. and others' No. 7 Coppinger, SW cor. NW, Section 11-11-3w, made 1,690 bbls. in 16 hours flowing from sand 6,470-6,560 feet. Cromwell-Franklin Oil Co.'s No. 20 Trosper Park, NE cor. NW SW, Section 12-11-3w, has been completed for 15,522 bbls. in 16 hours from sand 6,294-6,469 feet. Indian Territory Illuminating Oil Co. and others' No. 1 Habegger, SE cor. NW, Section 14-11-3w, has been completed for 7,080 bbls. in 16 hours from sand 6,415-6,506 feet. Denver Producing & Refining Co. and others' No. 2 Harvey, CNL SW SE SE, Section 15-11-3w, made 8,544 bbls. from sand 6,415-6,557 feet. Ryan Consolidated Oil Co.'s No. 1 Lawton, NE cor. NW, Section 3-11-2w, has been abandoned at 6,903 feet. Thomas B. Slick Oil Co.'s No. 1 Banta, SE cor. SW SE, Section 18-11-2w, is dry and abandoned at 7,555 feet. No. 2 Banta, NE cor. SW SE, Section 18-11-2w, has been abandoned at 5,525 feet.

Okmulgee County

Tiffany Brothers' No. 1 Shoals, SE cor. NW, Section 25-16-11, is rigging up. Kirkland & Son's No. 2 Brown, CNL SW SW, Section 9-15-13, is showing for 12 bbls. in sand 1,971-98 feet. No. 3 Brown, CNL SW SW, Section 9-15-13, twin to No. 2, setting casing at 1,968 feet.

Osage County

L. G. Stanley and others' No. 1, SE cor. SW, Section 4-28-7, is a machine. L. R. Twyman and others' No. 2, NE cor. SW SW, Section 21-27-11, is drilling at 1,000 feet. Indian Territory Illuminating Oil Co.'s No. 440, NE cor. SE SW NW, Section 5-26-12, is drilling at 95 feet. Peters Petroleum Corp. and Producers & Refiners Petroleum Corp.'s No. 4, NW cor. SW NW, Section 11-26-8, has been completed for 25 bbls. in chat 2,157-65 feet. Continental Oil Co. and the Prairie Oil & Gas Co.'s No. 5, SE cor. SW NE SE, Section 5-23-9, made 790 bbls. in 20 hours from sand 2,099-2,123 feet. J. E. Madden's No. 1, NE cor. SE, Section 15-21-8, has been abandoned at 2,490 feet. The Prairie Oil & Gas Co.'s No. 9, NW cor. NE SW, Section 30-25-8, has been completed for 100 bbls. in sand 2,396-2,424 feet.

Payne County

Mote & Wheeler's No. 1 Hermanstofer, NE cor. NW NW, Section 9-17-5, is dry and abandoned at 4,134 feet.

Pawnee County

Bryan Petroleum Co. moved a machine in to deepen No. 2 Johnson, NE cor. SE, Section 27-20-9. J. M. Scott and others' No. 1 Jones, SW cor. NE, Section 22-20-5, is dry and abandoned in Wilcox sand 3,794-3,824 feet. C. O. Buckles and others' No. 1 Jamison, NW cor. NE SE, Section 13-20-9, has been abandoned at 2,898 feet. Thompson & Black's No. 1 Russell, NW cor. NE NW, Section 29-20-9, has been abandoned at 2,852 feet.

Pontotoc County

Dixie Oil Co.'s No. 1 Buck, SW cor. SE NE, Section 32-5-5, is drilling at 150 feet.

Pottawatomie County

The Prairie Oil & Gas Co. is erecting the rig for No. 1 Ball, NW cor. SW SE, Section 27-6-3, West Asher area. The Texas Company's No. 1 Knight, SW cor. SE, Section 3-8-3, is dry and abandoned at 5,407 feet in Wilcox sand. Mid-Continent Petroleum Corp.'s No. 1 Archer, SW cor. SE, Section 14-6-3, West Asher Pool, made 2,725 bbls. in 24½ hours from sand 3,580-3,610 feet. Gypsy Oil Co.'s No. 1 Horn, SW cor. NW NE, Section 23-6-3, has been completed for 2,909 bbls. in 24 hours from sand 3,450-68 feet.

Seminole County

Burke-Greis Oil Co. made location for No. 2 Henshaw, NW cor. NE SW, Section 30-8-8, Wewoka Field. Deep Rock Oil Corp. staked location for No. 1-B Douglas, NE cor. SW, Section 30-8-8, for a gas test. Location has been made for No. 2 Douglas, SW cor. NE, Sec-

tion 30-8-8. No. 2 Johnson, SW cor. NW NE, Section 30-8-8, is also a location. Empire Oil & Refining Co. has the cellar dug for No. 2 Dameron, SW cor. SE NW, Section 20-6-6, Konawa Pool. The Prairie Oil & Gas Co. made location for No. 1 Maxey, SE cor. NW, Section 1-8-6. Gypsy Oil Co.'s No. 4 Coker, NE cor. NW SW, Section 2-8-5, Carr City Pool, has been completed for 1,435 bbls. in Wilcox sand 4,170-95 feet. Burke-Greis Oil Corp.'s No. 1 Henshaw, NW cor. NE SW, Section 30-8-8, has been completed for 12,000,000 feet of gas in sand 1,435-38 feet. Hilton Phillips' No. 1 Whisenhunt, SW cor. NE SE, Section 35-7-5, has been abandoned at 3,350 feet. Burke-Greis Oil Corp.'s No. 1 L. Patten, NW cor. SW, Section 17-6-8, is dry and abandoned at 4,303 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 2 Hyde, SE cor. SW NW, Section 2-8-5, flowed 1,400 bbls. from Wilcox sand 4,189-4,204 feet. Producers & Refiners Corp.'s No. 3 Harjo, NW cor. SW NW, Section 7-5-8, has been completed for 20 bbls. in sand 2,498-2,511 feet.

Cleveland County

The Prairie Oil & Gas Co.'s No. 1 Sudik, NW cor., Section 5-10-2w, has been abandoned at 6,896 feet.

Stephens County

Sykes and others made location for No. 1 Kirk, NW cor. SE, Section 16-1s-8w. Floyd Jones and others' No. 1 Toney, SW cor. NW SE, Section 27-2s-7w, is a rig under construction. Pace and others' No. 3 Dilley, SE cor. NE NW SE, Section 27-2s-7w, is drilling at 300 feet. Carl Wiley's No. 1 Spiegel, SW cor. NE NE, Section 10-2s-5w, is shut down at 891 feet.

Tulsa County

Jones and others' No. 1 Grayson, NE cor. SE NW, Section 1-19-10, is spudding. Gallo Brothers moved a machine in for No. 1 Bruner, NE cor. SW, Section 1-19-14. Preston and others' No. 1 Perryman, NE cor. NW NW, Section 4-17-14. Mays Drilling Co.'s No. 5 Marshall, CNL NW NE, Section 15-19-15, is making 8 bbls. from sand 1,381-90 feet.

Wagoner County

J. P. Flannagan's No. 1 Brown, NE cor., Section 17-16-19, is drilling at 390 feet.

Harper County

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, has been completed for 12,000,000 feet of gas in sand 5,350-5,400 feet after being plugged back from 8,590 feet.

Kay County

Peters Petroleum Corp. and C. O. Buckles' No. 1 Hays, NW cor. NE NW, Section 24-28-3, is a rig going up. The rig is being built for No. 1 Hays, NW cor. NE, Section 24-28-3. Mummer and others made location for No. 1 Sornick, NW cor. SE, Section 9-27-2. National Refining Co.'s No. 1 Harvell, CWL NW NW, Section 6-28-1, has been completed for 900,000 feet of gas in sand 595-675 feet. John Hoasik's No. 2 Barrett, SE cor. NE NW, Section 7-28-1, made a 10-bbl. well in sand at 3,398 feet after deepening from 3,344 feet. Wentz and others' No. 1-G Westherman, C NE NW, Section 8-28-1, has been completed for 35 bbls. in sand 3,384-3,417 feet. Alco Royalty Co.'s No. 1 Wolf, SE cor. SW SE, Section 34-26-2w, made 4,000,000 feet of gas from chat 4,390-4,447 feet. Nuckolls & Riggs' No. 1 Farha, NE cor., Section 17-26-2, has been abandoned at 561 feet. No. 1 Doughty, NW cor. NE SE, Section 8-26-3, made 975,000 feet of gas in sand 374-85 feet. No. 2 Doughty, SW cor. NE SE, Section 8-26-3, has been completed for 2,500,000 feet of gas in sand 384-89 feet. No. 3 Doughty, CWL NE SE, Section 8-26-3, made 3,750,000 feet of gas in sand 363-80 feet.

Noble County

Weaver & Cragin's No. 1 Fredrick, C SW NE, Section 4-24-1w, is dry and abandoned at 2,660 feet. Empire Oil & Refining Co.'s No. 1 Fraler, SW cor. NW NE, Section 4-20-1w, has been completed for 30,000,000 feet of gas in sand 3,449-67 feet.

CANADIAN FIELDS

(Continued from Page 50)

was drilled by Imperial Oil, Ltd., on acreage of the Sterling-Pacific Oil Co. and has a small shot production. A mile farther south, Merland Oil Co.'s No. 1 encountered still different conditions, with a short lived crude naphtha production from a big gas flow in the Dalhousie horizon, and may be completed by the Imperial company.

South Turner Valley

In the south Turner Valley area, Miracle Oils' No. 1, LSD 11, Section 4-19-2w5, is the latest important completion in the field. At first estimated at 150 bbls., the initial 24-hour test showed 296 bbls., which later increased to 360 bbls. Production comes from a horizon 420 feet in the lime. In view of the results secured in Miracle Oils' No. 1, Mill City Petroleums, Ltd., is reported considering either the deepening of its No. 1 well in LSD 14, or the drilling of a new test. Mill City's No. 1 was carried to 5,060 feet when the bit left the lime and entered shale. Two successive shots failed to increase the wet gas flow, estimated 4,000,000 feet a day, to commercial proportions, and the well has since been standing. James Cochrane is president and W. Kemp secretary of the company.

In Section 16-19-2w5, East Crest Oil Co.'s No. 2-A is definitely the biggest producer in the field with a recorded production of 612 bbls. a day. Its production in the first 13 days of October exceeded any other Turner Valley well in the entire month of September. To eliminate danger of freezing, back pressure between 1,200 and 1,300 pounds, the highest in the field, is maintained, though with lower back pressure a considerably larger recovery could, temporarily at least, be secured. The well is operating on two separators but a third may be added. East Crest's No. 1, LSD 5-6, has reached a peak production around 60 bbls. The company experienced exceptional drilling difficulties, No. 1 well having a lot of casing trouble while the original No. 2 had to be abandoned at 3,208 feet. Contract has been let for No. 3 well to start work this month and be completed by midsummer of 1931. The location will be fairly close to No. 2-A and possibly in the same LSD 4. Revenue from production runs around $60,000 a month, of which 40 per cent will be set aside for dividends and the balance used to finance new drilling.

It is reported that plans to clean out Royalite's No. 4 with a view to restoring production have been temporarily abandonded, owing to the condition of the casing.

Central Turner Valley

In the Central Turner Valley, Sioux City Oil Co.'s No. 1, LSD 10, Section 1-20-3w5, is reported drilling below 5,960 feet. At this depth it is close to establishing a new record for drilling in the lime. It has encountered a number of gas shows in the lime, but nothing to justify a production test. Okalta's No. 1, LSD 1, with some casing leakage still to overcome, is reported delivering 200 bbls. a day. Okalta's No. 3, LSD 9, is in the lime at 4,550 feet with a small gas show and waiting for a decision as to a shot.

In Section 12-20-3w5, New McDougall-Segur Oil Co.'s No. 4 is making around 70 bbls. a day. Richfield Petroleums' No. 2, LSD 12-13, Section 13-20-3w5, is drilling around 1,900 feet and logging 250 feet higher than Spooner's No. 1, in the same section. The log indicates that the location is on the same fold tapped by Royalite's No. 11, which was a good producer. The test got the cardium sandstone marker at 870 feet and is expected to get the top of the Dakotas around 2,550 feet; 13⅜ casing has been run to about 1,850 feet.

Moose Dome

On the Moose Dome, northwest of Turner Valley, Moose Oils No. 1, LSD 16, Section 29-22-6w5, is unofficially reported to have developed 1,050 lbs. pressure since being shut in, and to show considerable accumulation of crude naphtha. This test started drilling in the Banff shales and entered the Devonian lime at 550 feet. At 2,200 feet considerable gas was met, which is still coming between the 8-inch and 10-inch strings. The test was carried deeper, encountering small shows of oil and gas, and at 2,789 feet a heavy flow was struck, estimated 10,000,000 feet a day. On attempting to drill deeper into the sand the tools became frozen in the well; and it was decided to shut the well in, to allow accumulated pressure to dissolve the ice. Officers of the company recently elected were: president, J. I. Rankin, Montreal; vice president, Ralph Webb, Winnipeg; directors, N. A. Timmins, W. H. C. Mussen, Montreal; J. E. Woods, P. L. Sanford, D. W. Pilling, Calgary; secretary-treasurer, D. A. O'Meara, Montreal.

On the adjacent Herron structure, Herron Petroleums' No. 1, LSD 3, Section 13-22-6w5, is drilling in formation supposed to overlie the lime at 2,720 feet, with a little gas and traces of oil. A producing horizon in the lime is looked for around 2,950 feet.

On the Pincher Creek structure, Weymarn Petroleum's No. 2, LSD 5, Section 7-6-1w5, is working one shift, cleaning out after a shot at around 2,024 feet. The gas flow is estimated between 2,000,000 and 4,000,000 feet.

Imperial-Texas Test

An important new wildcat test will be drilled jointly by Imperial Oil, Ltd., and Texas Oil Co. of Canada on acreage of Lethbridge Petroleum & Refineries, Ltd., on a new structure a few miles west of Lethbridge, in southern Alberta. Negotiations looking to joint development of this structure have been in progress for some weeks, and location for Texas-Imperial's No. 1 has now been made in LSD 14, Section 22-8-22w4. Cellar is now being dug and 9,000 feet of 6-inch water line laid to ensure a steady water supply throughout the winter. Standard tools will be used, and an outfit for this purpose will be trucked from Turner Valley. Drilling will be under supervision of J. H. McLeod, western production manager of Imperial Oil, Ltd. The latter holds extensive acreage on the structure alongside the Lethbridge Petroleum & Refineries holdings; The Texas Oil Co. some time ago secured an interest in the Lethbridge company's leases.

This development marks the first active participation by the Texas Oil Co. in Alberta drilling. The company, however, owns an extensive distributing system in Alberta and a small refining plant at Lethbridge. Lethbridge Petroleum & Refineries, Ltd., was organized last year by a group of Lethbridge and Calgary men who blanketed a large part of the structure and carried on extensive core-drilling under direction of H. M. B. Inglis, these operations continuing till the spring of 1930. Later the Texas company secured a portion of the acreage on a cash and royalty basis. In the meantime Imperial Oil, Ltd., had also done extensive filing. Commonwealth Petroleums, Ltd., of Calgary, holds extensive acreage to the immediate west, on the Blood Indian Reserve, where core-drilling is still in progress; and some acreage is also held by Hudson's Bay Oil & Gas Co. The core drilling is reported to indicate a very extensive structure possibly marking a northerly extension of the Kevin-Sunburst and Red Coulee Fields. It is understood the arrangement between the Texas and Imperial companies is on a 50-50 basis.

On the Milk River structure, Commonwealth Petroleum's No. 1, LSD 9, Section 8-3-15w4, has finished underreaming for 6-inch casing to 4,461 feet and is drilling new hole at 4,520 depth, with considerable gas forcing its way up through the water in the hole. Commercial production is looked for in a break in the Devonian limestone. Anglo-Western Oils' No. 1, LSD 1, Section 12-4-17w4, two miles west of Warner, is finishing water well and rigging up for its commercial test with the rig from Dalco Oil & Gas Co.'s No. 1 in the Red Coulee Field.

In the Keho Lake area, Hudson's Bay Oil & Gas Co.'s Keho No. 1 LSD 2, Section 17-11-22w4, is in the Milk River shales at 2,100 feet and cementing against caving. The test encountered a small pocket of gas in an upper horizon.

Red Coulee Field

In the International Red Coulee Field, Celtic Oil Co.'s No. 1, LSD 4, Section 17-1-16w4, is reported standing at 2,550 feet after encountering two pockets of

GULF COAST PORT SHIPMENTS DURING AUGUST AND SEPTEMBER

HOUSTON, Tex., Oct. 27.—A total of 17,932,251.21 bbls. of crude and refined products was lifted out of Gulf Coast ports during September, according to figures just compiled. This represents a decrease of 1,174,372.28 bbls. from water shipments of August. There was a decline in port movements of both crude and refined products and both for coastwise and export destination. No crude at all was moved export during the month. Shipments by companies and ports were:

REFINED

Company and port—	Coastwise August	Coastwise September	Export August	Export September
Standard Oil Co. (La.):				
Baton Rouge	812,574.00	548,171.00	621,799.00	785,844.00
The Texas Company:				
Port Arthur	1,109,985.00	1,594,066.00	495,363.00	185,132.09
Gulf Refining Co.:				
Port Arthur	2,449,329.51	1,978,514.83	187,183.50	174,763.87
Magnolia Petroleum Co.:				
Beaumont	1,717,910.09	*1,455,602.40	.....	.....
Humble Oil & Refining Co.:				
Baytown	1,305,001.64	1,744,996.79	1,513,729.11	1,373,978.08
Atlantic Oil Prod. Co.:				
Atreco	109,502.44	4,210.30	.....	.....
Pure Oil Co.:				
Smiths Bluff	488,106.91	539,008.73	.....	.....
Total, refined	7,992,409.59	7,864,570.05	3,118,074.61	2,519,717.96

CRUDE

	Coastwise August	Coastwise September	Export August	Export September
Standard Oil Co. (La.):				
Baton Rouge	237,456.00	255,085.00	109,397.00	.....
The Texas Company:				
Port Arthur	183,036.00	471,919.00	.....	.....
Gulf Refining Co.:				
Port Arthur	285,974.45	308,004.13	.....	.....
Magnolia Petroleum Co.:				
Beaumont	852,184.14	*762,546.35	.....	.....
Humble Oil & Refining Co.:				
Texas City	320,731.85	771,255.00	.....	.....
Ingleside	104,213.57	206,249.00	.....	.....
Baytown	97,103.11	76,954.00	.....	.....
Harbor Island	2,156,445.83	2,179,094.00	.....	.....
Neches	75,013.27	.....	.....	.....
Atlantic Oil Prod. Co.:				
Atreco	1,173,372.27	504,681.16	.....	.....
Beaumont	57,182.40	310,641.55	.....	.....
Pure Oil Co.:				
Smiths Bluff	638,922.40	707,929.02	.....	.....
Sun Oil Co.:				
Sabine Pass	1,204,607.00	993,605.00	.....	.....
Total, crude	7,386,742.29	7,547,963.21	109,397.00	.....
Total shipments	15,379,151.88	15,412,533.26	3,227,471.61	2,519,717.96

*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.

gas. Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, is reported drilling at 2,100 feet after underreaming and lowering casing to 2,005 feet. Southern Alberta Exploration Co.'s No. 1 is reported to have increased its production slightly to 75 bbls. a day, deliveries being made to Imperial Oil, Ltd. Southern Alberta's No. 2 has cellar dug and derrick up but will let stand till spring.

On the Montana end of the structure, Inland Petroleum's No. 2 SW Section 1-37-4w, is reported flowing 55 bbls. a day and delivering considerable gas into the line. Monalta Oil Co. recently elected a new board of directors, including: president, William Borden, Lethbridge; vice president, J. H. Walker, Raymond; directors, E. A. Heninger, Cardston; Charles Egger, Barons; H. G. Minor, Medicine Hat. The directors are planning to put the three Monalta wells on the Buckley lease on steady production as soon as possible. Monalta's Buckley No. 1, Section 1-37-4w, which was yielding from 10 to 15 bbls. before the pump was transferred to No. 3, will again be put on the pump. No. 3 is reported making between 80 and 90 bbls. a day. No. 2, standing at 2,518 feet, will be carried to the producing sand.

Ribstone Test

A severe blizzard in northern and eastern Alberta has held up operations in the Ribstone Field, where Meridian Oils' No. 3, LSD 4, Section 16-45-1w4 was recently cemented on top of the oil sand at 1,882 feet.

Lesser Slave Lake Test

It is announced that International Oils, Inc., of New York will start its No. 3 test in the Lesser Slave Lake district next spring. International Oils' No. 1 was drilled some years ago in Section 14-74-4w5, finishing at 2,840 feet with a small gas flow. International's No. 2 on a different location was abandoned at 3,105 feet after drilling about 600 feet in the lime. No. 3 will, it is reported, be located 4 miles south of No. 2.

British Columbia Drilling

In the Sage Creek district, British Columbia, B. C., Oil & Coal Co.'s No. 1 test is reported shut down for the winter.

A structure extending across the British Columbia-Washington boundary will be tested in the vicinity of Abbotsford, B. C., where B. C.-Alberta Oils, Ltd., has leased about 5,000 acres. The acreage is not far from the Sumas Oil & Gas Co.'s tests near Sumas Prairie. On the international structure, gas has been encountered in small quantities at shallow depths, and geological information is that oil may be encountered between 2,000 and 2,500 feet.

Frank Patrick and associates of Vancouver are reported to have started a test for oil in the Cariboo district.

On the Sumas Prairie structure, Sumas Gas & Oil Co.'s No. 2, Section 2-19-E.C.M., is reported drilling around 950 feet.

In the Kelowna district, E. G. McKenzie and associates are reported building derrick for a test on Canyon Creek. In the Steveston area, International Pipe Line Co.'s No. 2 is drilling below 540 feet.

Saskatchewan Test

In Saskatchewan, Simpson Oil Co.'s No. 1, Section 9-29-25w2, near Simpson, is reported resuming at 2,200 feet after installing new cable.

Alberta Wildcats

On the Beaver Dome structure, in southern Alberta, Oak Oils, Ltd., of Calgary, which has been operating since 1926 in the Kevin-Sunburst Field, is preparing to develop its Alberta acreage. The acreage is about 29 miles east of Coutts, and not far from the Rogers-Imperial gasser.

In the Carbon district, Carbon Exploration Co. is reported securing a standard outfit for its No. 2 test.

In the south end of Turner Valley, Sunburst Oils, Ltd., of Vancouver, B. C., is considering plans for development of an 80-acre tract in Section 28-18-2w5. The acreage is south of Sterling-Pacific Oil Co.'s No. 1 producer and west of Merland Oil Co.'s unfinished No. 1 test, which encountered a heavy wet gas flow with crude naphtha recovery in the Dalhousie sands. Officers of the company are: president, Ray R. Knight; vice president, Vic J. Creeren; secretary, J. P. Watson; directors, A. H. Hoy and P. H. Marsden, all of Vancouver, B. C.

CALIFORNIA FIELDS

(Continued from Page 56)

Signal, and this new well, bottomed at 7,443 feet and finished with a 4¾-inch liner carrying 1,022 feet of perforated, was brought in flowing 510 bbls. per day. The Hancock Oil Co. finished its No. 7 Long Beach but this project, bottomed at 7,177 feet and later redrilled to 4,785 feet, was somewhat of a disappointment as it was only good for 220 bbls. of 26.7 gravity oil per day on the beam.

The Union Oil Co. finished No. 58 Bell, a new well in the Santa Fe Springs Field, and increased its daily production 530 bbls. This well, finished in the Nordstrum zone at 5,067 feet, was finished with a gas lift. The General Petroleum put two wells on production in this field, neither of which registered substantial production. No. 153-C on the Anderson lease was good for 210 bbls. initially from 5,336 feet, while No. 160-D on the Santa Fe lease made 65 bbls. per day from 7,120 feet. In the Huntington Beach Field the Woodward Oil Co. finished No. 1 Ames pumping 60 bbls. of 26.6 gravity oil daily from 4,307 feet, the hole having been finished with a 6¼-inch liner carrying 267 feet of perforated.

SOUTHWEST TEXAS FIELDS

(Continued from Page 48)

750 feet. Humble Oil & Refining Co. is moving a rig into the southern part of the county to drill on the Ernest Lamm farm.

Duval County

In northwestern Duval County Magnolia Pipe Line Co. is now running oil from the first well in the S. R. C. Pool in Survey 293 and the second test in the same survey at last reports had reached 1,717 feet and was ratholing for the sand, topped in the first at 1,722 feet. Another completion should be reported in that field this week. This is not on a unitized block but it is a unit owned block of leases, the Vacuum Oil Co., S. R. C. Oil Co., and Al Buchanan owning it and the development is expected to be rather gradual.

Scattered Wildcats

In DeWitt County Penn Oil Co. is down below 2,300 feet and making hole fairly fast in the No. 1 Junker which is a high powered proposition in which royalties and leases outside the block sold at a pretty stiff price. It is one of those things where the geology is apparent to most anybody. Hence it is being watched with special interest and the next week or two will be at depths that will make it still more interesting.

In San Patricio County, at the close of last week, Union Producing Co.'s No. 4 Welder had a sand at 5,762-69 feet and was preparing to make a drill stem test. The well is 5 miles northwest of Sinton on a big lease block, all on one ranch, that was originally blocked by William F. Morgan and then turned to the Houston Gulf Gas Co. and in the process of mergers came to the possession of the Union Producing Co. The other three tests were all dry but held out hope.

The territory south of Seguin got touched up a little last week when J. S. Suttle's No. 2 Baenziger bailed 2⅓ bbls. of oil at total depth of 1,957 feet with the bottom of the hole in the Del Rio. The well had a good showing in the Buda lime. It is too small for a well but the showing is another of those things that have encouraged operators wildcatting in the south half of Guadalupe and especially south of Seguin. Suttle was debating Sunday just what to do next. It may indicate better things in the Edwards which was the formation he aimed at in the first place.

More rains in Williamson County have helped out the Chapman Pool and E. R. Marts gave the field a slight extension to the north by bringing in a 50-bbl. well which due to its size seems to mark the north edge of the field. Anderson and Cameron brought in their No. 3 M. V. Lawrence, total depth about 2,000 feet and flowing the first hour after it had cleaned itself, 135 bbls. of oil.

Fayette Leasing

There has been considerable long time 10-year leasing in Fayette County within the last three months, most of it down along the southeast line of the county and slopping over a little into Colorado County. Shell leased 4,000 acres covering the southwest end of the David Berry Survey and most of the J. H. Lewis Survey 3 or 4 miles southwest of La Grange and has done some core drilling on it. Shell has 8,000 acres just north of the town of Ellinger in the eastern part of the county in the J. H. Burton and adjoining surveys with some other operators mixed in the block.

Sun Oil Co. has 6,000 acres just northwest of Roundtop in the northeast end of the county.

Ten miles south of La Grange Indian Territory Illuminating Oil Co. has about 5,000 acres between Ammansville and Dubina. On south of that Humble Oil & Refining Co. has about 5,000 acres just east of High Hill and on the south line of the county Texas and Gulf each have considerable acreage.

In the northwest part of the county southwest of Primm the Shell has quite a block of acreage. Most of the leases are for 10 years without immediate drilling obligation.

LA.-ARK. FIELDS

(Continued from Page 52)

testing dry in 2 feet of sand from 888-90 feet.

MISSISSIPPI

The Jackson gas field in Mississippi recorded its twenty-first gasser when Millstein Oil & Gas Co.'s No. 1 Millstein, Section 12-5-1e, Rankin County, was completed in Midway chalk from 2,387-92 feet, making 35,000,000 feet of gas. Meridian Oil & Gas Co. has abandoned No. 1 Houser, Section 33-8-18, Lauderdale County, east Mississippi, as a dry hole at 2,826 feet in a sandy shale.

There are now forty-four operations under way in the State of Mississippi, including three new locations announced during the week, all for the Jackson gas field. Cane River Oil & Gas Co. has rig up for No. 1 Kobbler, SW SW Section 15-5-1e, Hinds County; Atkisson & Dyer have derrick up for No. 1 Wiggins in Section 33-6-1e in the same county, and Cleve Love and others have derrick up for No. 1 Muse, SW SW Section 32-7-4e, Rankin County.

Love Petroleum Co.'s No. 1 Maley, Section 15-5-1e, Hinds County, which showed some 13.1 gravity oil, is now making about 300 bbls. of fluid daily with 25 bbls. of it oil and at a temperature of 105° with the temperature getting higher. The oil is about 80 per cent fuel oil.

Natural Gas Products Co. has deepened No. 8 Roquemore, B. C. Jordan Headright Survey, Panola County, East Texas, the first gas producer in the Trinity horizon there, and the test is now making 25,000,000 feet of gas from Oolitic lime at total depth of 4,707 feet. There is one other Trinity zone gas producer in the field.

KANSAS FIELDS

(Continued from Page 44)

Section 6-17-1, has been abandoned at 3,505 feet. Stearns & Streeter's No. 1 McNichol, NW cor. NE NE, Section 15-17-4, has been completed for 75 bbls. in sand 2,345-92 feet.

Morris County

Urschell and others' No. 1 Scott, NE cor. SW, Section 6-16-6, is rigging up to deepen from 2,420 feet.

Sedgwick County

Producers & Refiners Corp.'s No. 1 Turner, NW cor. SE, Section 30-27-2, has been abandoned at 3,342 feet.

Stevens County

Western Production Co.'s No. 1 E. B. Webber, C NW, Section 13-32-38w, is rigging up. The rig is being built for No. 2 E. B. Webber, C NE, Section 9-33-37w. Pioneer Petroleum Co. and others moved the rig in for No. 1 Morris, C SE, Section 29-34-38w. Location has been made for No. 1 Eby, C NE, Section 16-35-38w. Argus Production Co.'s No. 1 Olsen, C SE, Section 1-32-38w, made 13,816,000 feet of gas in sand 2,534-2,705 feet. Missouri-Kansas Pipe Line Co. and others' No. 1 Crawford, C SE, Section 34-32-38w, has been completed for 2,753,000 feet of gas in sand 2,510-2,770 feet. Rosenthal and Pioneer Petroleum Co.'s No. 1 Beavers, C NW, Section 1-35-38w, made 8,800,000 feet of gas in sand 2,630,2,808 feet.

MICHIGAN FIELDS

(Continued from Page 56)

pay sands at 3,560 feet and finishing at 3,585 feet.

Three shows of oil, too light for commercial production, had been encountered in the General Petroleum Corp.'s No. 1 Pat Regan, SE NW NW, Section 36-16n-4w, Vernon Township, Isabella County, as the drill reached 80 feet in the Dundee. Limestone was topped at 3,685 feet and the hole was 3,765 feet and still drilling. Failure to make a good producer of this hole is in line with other recent developments in Vernon Township where bottom water has drowned out several wells which promised to make considerable oil.

A light showing of oil also was struck in the Marshall formation in Lewis D. Mehrtens' No. 1 M. Baumann, NE SE SW, Section 21-14n-7w, Wheatland Township, Mecosta County, west of the Mount Pleasant area. Some water also was encountered.

Completions in the Mount Pleasant area to date total 184 oil producers and several dry gassers in Broomfield Township, Isabella County, several miles due west of Mount Pleasant.

Clare County

Two new Clare County wildcats have been spudded on the property of James A. McKay and John A. Mercier of Detroit, who have drilled three wells in Grant and Hatton Townships. McKay & Mercier's No. 4 McKay is located SW NW, Section 6-17n-4w, Grant Township, and Henry M. Brown's No. 1 McKay-Mercier well is located NE NE SE, Section 1-17n-5w, Surrey Township.

Muskegon Well

Oil flowed over the derrick when the Lima Oil Corp.'s No. 9 Louis P. Haight, SW SW SW, Section 9-10n-16w, Muskegon Township, Muskegon County, was drilled into the upper Traverse. Possible initial production was not available as casing had not been run nor a test taken. The well is the first to show indications of becoming a commercial producer in the upper Traverse, or shallowest pay sands in the Muskegon Field, in many months.

G. C. Irwin of Muskegon has been granted permission to drill an oil well in Pingree Park within the Allegan city limits.

Manistee County

Swastika Oil & Gas Co.'s No. 1 Croamer, NW NW, Section 34-22n-16w, Manistee Township, Manistee County, was dry in the Monroe, striking salt at 2,045 feet. It was plugged and abandoned at a total depth of 2,060 feet.

SHELL ENGINEERING DEPT.

HOUSTON, Tex., Oct. 27.—A separate engineering section has been created by the Gulf Coast division of the Shell Petroleum Corp. with Roy B. Siler as chief engineer. Mr. Siler, as well as the remainder of the new section, formerly were associated with the land department under the direction of H. W. Penterman. The steady expansion of the Shell Petroleum Corp. on the Gulf Coast in recent years has necessitated the separation of the engineering work from the direction of the land department.

JOHN W. HARROLD DIES

CHATHAM, Ontario, Oct. 25.—John W. Harrold, aged 80, died recently at Sarnia, Ontario. He was one of the early Petrolia drillers and with his father in 1879 drilled the Harrold well, for many years a large producer. He later drilled in Australia, Burma and Assam.

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Chicago Expects Tank Wagon Price Cut

Reduction in Crude Price Schedule Viewed as Stabilizing Influence by Some. Others Feel Prices Still Too High

By John B. Waldo

CHICAGO, Oct. 27.—The reduction announced in Mid-Continent crude oil prices is looked upon here in two ways. There are some who believe that it is the beginning of a settled situation while others say it is not enough of a reduction to be of any material assistance in arriving at settled prices. The effect on the buyers of gasoline has been to cause them to expect a tank wagon decline and the more free buying which had prevailed last week was not in evidence this morning. Gasoline buying during October, to judge from statements by some active sellers, has been more liberal than during September.

The major refiners have reduced their prices on U. S. Motor to 5¾ cents but there was little change observable as yet in the spot market the range of quotations made continuing to be from 4¾ to 5 cents. There was about the usual amount of ordering from the spot and contract buyers but as the news of the crude reductions spreads a quiet time is looked for until something is settled regarding a tank wagon change. Many in the trade look for a general reduction of 1 cent from the normal price. If this cut is made it will find many points already established on the new price basis.

The demand for kerosene is still light. Furnace oils were awaiting lower temperatures as the weather has been mild and not favorable to their consumption for the past week. Prices on the zero oils are firmly held but the heavier ordinary temperature oils with a high viscosity were not as firm as before the crude reduction. The industrial demand is light and even many of the first of the month buyers are waiting before asking for quotations for their wants over November. The demand for lubricating oils is light, the only item of value being the willingness of a large southwestern refiner to meet going prices although below their own quotations. Locally the situation seems as much unsettled as it was before the reduction in the price of crude.

Uncertainty Affects Prices

There is no doubt that the continued uncertainty last week as to the prices paid by refiners for Mid-Continent crude had much to do with the light demand for gasoline and to a less extent for other products. The head of an important company here stated that he could lay his plans for a year ahead with more certainty than he could for tomorrow or next week.

The gasoline market lacked animation. One of the large refining agencies had a large quantity of domestic burner fuel, both distillate and gas oil sold to contract customers. The colder weather brought in fuel business and had it not been for that the business would have been light. Others were in the same position and those with little besides gasoline to dispose of, had a dull time of it. Larger distributors admit that their gallonage is less than a year ago. The assertion is made that the quantity of gasoline sold in the territory shows an increase over last year, but that the number of sellers has been so increased that every company is finding it difficult to equal last season's figures.

Another reason for the lack of demand for gasoline experienced by the larger refiners is that their prices have been too high, judged by the spot prices. They have not expected to sell much in the spot market with their prices at least a cent higher than the jobber could buy for from outsiders but they did expect to hold their contract trade.

Difference in Price Too Great

In some of the contracts the quantity of gasoline which the distributor must take to keep his contract is only a part of his requirements but the contract refiner has relied upon his ability to sell his customer most if not all of his supplies. The difference in price has been too great. This was indicated by offers to buy at a figure below the contract for quantities in addition to the quantity that must be taken at prices significantly lower than the contract price. Some of the major refiners had a contract price for last week which amounted to 5¾ cents when the open market range was from 4¾ to 5 cents, to the same concerns.

Here was an opportunity to make a saving of 1 cent a gallon on their principal article of merchandise, that is gasoline. Some large jobbers in differential territory stated last week that they had had quotations of 4½ cents, Group 3, for U. S. Motor gasoline and this price was quite generally named in the Tulsa price sheets which are freely sent into this territory to good accounts.

The low prices paid for crude by some of the Oklahoma refiners are said to reduce the cost of gasoline from one-half to a cent a gallon according to the amount of the cut, the quality of the crude and the refining methods employed. But even this reduction in the costs does not account for the low prices unless refiners find themselves forced to sell at cost or less.

Low Prices Work Hardship

The low prices for gasoline not only work a hardship on the refining industry but has a demoralizing effect on the distributing end of the business as well. It is believed that the present low prices named to consumers will be the cause of trouble when the time comes to ask a fair price for the gasoline. It is a rather curious fact that right in the midst of this war of prices the consumers are buying a larger quantity of premium gasoline than ever before. The demand is so insistent for a certain brand that large companies are forced to place this brand on sale although most of them have their own antiknock product.

It is declared that the refiners and the reporting agencies of the output of gasoline should stop judging refinery activity by the quantity of crude run and instead give the output and say nothing about crude runs. For the purposes of the producer the quantity of crude withdrawn from storage could be given. The crude withdrawn from storage would go into consumption more rapidly than do the refinery shipments of gasoline by which the Bureau of Mines has attempted for years to indicate the consumption. In the course of a year both would average correctly.

Situation in Detroit Demoralized

One of the most demoralized price cutting situations has been in Detroit. There is the usual tendency to obscure the situation by each side accusing the other of not only originating the cut, but of subsequent actions tending to prolong and intensify conditions.

One operator asserts that after attending a meeting of independents, he went back to his office and immediately began preparations to close all of his stations as there was no possibility of making any money and the only question was what plan to follow to reduce the losses to a minimum. He, with some other independents, had been maintaining the normal price hoping that the major companies would advance their prices but as no action was taken by the majors and the independents had no plans for the future that seemed to promise any relief to this operator he discharged his help and closed down his stations. He said that it looked to him as if the present conditions might last until New Years Day. Payment of the State tax on gasoline sales is working some hardship on the dealers.

The situation in Detroit is aggravated by the unusual number of available sources of supply. There are refineries in every direction and each is anxious to have as much of the business from the automobile capital as possible. Refineries in the Chicago area maintain large stocks of regular material at Detroit which they replenish at low freight charges, by means of tankers so that they are in position to quote as low prices as the refineries who are situated nearer but actually have a larger freight charge to include in their costs. It is the old story of more sellers than buyers.

Demand for Knockless Gasoline Grows

The demand for the knockless gasolines is growing stronger and the question is what is going to be the gasoline of the future. The present method of preparing a knockless gasoline by the addition of an antiknock preparation is only a makeshift in the opinion of many good oil men who say the production of a satisfactory antiknock gasoline is not only feasible but probably easy.

The demand for the higher tests has been pitifully small during the last week. Prices almost as low for 60-62 400 endpoint as for the U. S. Motor have been freely named, a refinery frequently adding only an eighth cent because of the higher gravity. Some export demand for the 375 endpoint is reported here and the market for this gravity has been a little stronger but not active. Natural gasoline has declined about one-half a cent.

The demand for kerosene is possibly a little more active but there has been little change in the buying and just a little sagging in the price. Prices in the open market range about an eighth of a cent lower than a week ago.

The sale of furnace oils is still waiting for a really cold snap to bring out the full demand. Until it does come, the price situation remains unchanged. On a few items it is a little easier in tone. The high grades in distillates or gas oil are firmly held with gas oil having some advantage owing to the lower freight costs, but a distillate which is not a full 38-40 or which lacks in any way the essentials of a high-grade piece of merchandise, is being offered a little lower in price than it would be if the demand were stronger. At the present time there is a fairly good demand but not such a rush as would induce a customer to accept anything but the full specification material. He might gladly do so, a little later in the season after the weather had really turned cold.

Shipments Held Back

Some of the local distributors have ordered out large stocks and having been unable to move them as promptly as received, have been obliged to ask that further shipments be held back until they had an opportunity to secure some movement to their customers in turn. There has not been enough of this to have any real effect on the market especially at this time of the year when the large demand is ahead of the industry and the feeling is that good oils are rather scarce. It may not be easy to replace present deliveries so the trade is holding what has been shipped even at the expense of some demurrage.

Refiners of high grade distillate and of any sweet zero gas oil, say they are contracted for the season and have only an occasional car to sell. They state that any reduction of prices as the result of a possible crude cut are not probable as the demand is too large and the supply too closely held.

There has been sent to this market, within the last few days, samples of what is described as a treated crude which has specifications of a first class 28-30 fuel oil with almost gas oil qualities. The sample submitted to one concern was of a 29 gravity zero oil with a low flash and an unusually low viscosity. It was entirely sweet, coming from the Oklahoma City Field. The material, in large quantity, would have some effect on the market.

Quiet Demand for Heavy Fuel Oil

The demand for heavy fuel oil is still light although a little better than it was as there is some demand for heating purposes. The demand for power uses is still light and dealers who have specialized in this department find the business slow. The demand for heating will be improved with more cold weather. Prices are a little easier in spots. As a rule the insistence of buyers who say prices should be less owing to the coming crude decline, are well withstood and prices for desirable zero oils are held with firmness owing to the light supply. Oil men from this city who have been down in the Oklahoma field, searching for good fuel oil, particularly the 18-22 gravity, state that there is little to be had. They even state that refiners have no free stocks to sell of any moment.

Something will have to be found that can be used. There is plenty of the heavier fuel oils with gravities of 6° up to 10° or 12° which the average user of fuel oils is not equipped to burn. Some large refiners say that the time is only a few years off when this residium oil from the cracking plants will be all the fuel oil available but at present the users are satisfied that they will have plenty of fuel oil at a price which the user can pay. Generally there have been no changes in quotations except the marking up of prices for country shipment.

Wholesalers at Variance

The prices in the U.G.I. material seem to be cut. At least it is difficult to explain some of the recent deals in this commodity. Wholesale dealers are at variance regarding the costs of a good gas oil of the gas makers' type. Some say that their refinery costs are 2 cents while others give 2¼ cents and one refinery has quoted 2⅜ cents, for gas oil with identical specifications. Under these conditions it is not strange that some of the bids submitted are rejected as too high, although close to refinery costs. The demand is improving slowly. Zero gas oils are firmly held with a range of prices from 2⅜ cents up to 2¾ cents for a light colored oil which can be classed as straw gas oil. The supply of zero gas oils is not excessive and refiners find little difficulty in getting their full price.

In the distribution end, locally at least, prices have been reduced over the territory during the past week and the reductions are coming right along from small and large points. Milwaukee, Minneapolis and other cities have been cut, some for the second time. The prices in Chicago are still normal. In spite of all the price reductions, there are many more points at which the full price prevails.

OIL IN MISSOURI

KANSAS CITY, Mo., Oct. 25.—A 40-bbl. oil well, much larger than the average of the wells in the shallow field, was brought in today on the Hoke farm near Lees Summit, Jackson County, Missouri, northeast of the old Paola Field in Kansas. The well is on a lease held by Jefferson & Newberg. Oil was found at 300 feet.

Oil Products Have Quiet Week in East

Gasoline Situation Slightly Easier, But Leading Sellers Continue to Maintain Posted Price. Export Markets Still Lag

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Oct. 27.—Refined products markets in the East Coast area have passed through another quiet week, with price changes of outstanding importance lacking. The gasoline situation is slightly easier, but leading sellers continue to maintain the posted price. Paraffin wax quotations are again lower, and a little softness was shown on lubs. Reductions in Diesel oil prices at Gulf Coast ports were announced during the week.

Export markets were still lagging, and lack of foreign demand, it was believed, was responsible in some measure for the gains recorded in refinery gasoline stocks. East Coast refineries are reducing their operations fractionally from week to week, with a substantial drop from peak levels of the year anticipated by the close of 1930.

Interest in eastern markets is focusing on the forthcoming convention of the American Petroleum Institute. There is a definite feeling in trade circles that momentous developments may be looked for at the Chicago gathering and it is expected that an unusually large attendance from the East will be on hand when the sessions get under way.

Refinery Gasoline

The posted price remains unaltered at 7¾ cents per gallon, with some sellers quoting up to 8¼ cents, both prices being for U. S. Motor in tank car lots, f.o.b. refinery terminals. The market is less firm than was the case in the preceding week, and reports of business at 7½ cents, a cut of a quarter cent under the posted level, have been fairly numerous. Sales are said to have been made under the 7½-cent level, but it appears fairly certain that the 7½-cent price represents bottom in the average transaction. Distressed lots, which are not of large amount at the present time, would necessarily go out under the general market levels.

There has been but a moderate demand from jobbers this week. Cold weather has cut into consumption to some extent, but marketers believe that the growing popularity of football, with resultant heavy week-end motoring, will tend to keep consumption totals to high levels for the next month or so.

Sales of premium gasolines are leading in interest in the refinery market at the present time, and gallonage is showing satisfactory increases from week to week. Sales of the premium fuels are running in excess of 1929 totals, leading refiners report, the increase in these grades running ahead of the general gains for all gasolines.

One or two of the larger operators who have been low sellers during recent months are reported to have revised their selling plans and are now conforming to the general market in their offerings. This has been reflected by a more stable feeling in the general market situation.

Tank Wagon Gasoline

It is still a battle for gallonage in many parts of the territory, and price cutting is the exception rather than the rule in many instances. In the metropolitan area, leading brands can still be purchased at 7 to 8 gallons for $1, state tax included. This shading is not confined to independent station operators alone, but is being indulged in by chain stations owned by some of the leading integrated companies.

There has been a little falling off in consumption, due to unseasonably cold weather, and this has been reflected by some falling off in tank wagon deliveries.

A strike of tank wagon drivers and helpers and service station attendants, called by a new union recently organized in this field, has apparently failed to pan out, only a few men answering the strike call. Deliveries from bulk terminals and operation of service stations have not been appreciably affected in any part of the metropolitan area.

Kerosene

Colder weather during the week brought out a sustained inquiry for kerosene for refinery shipment, and the market held steady at 6¾ cents per gallon for 41-43 water white in tank car lots. Jobbers who had permitted their storage stocks to run out have been buying for replacement in substantial quantities, and with shipments moving out virtually as fast as received have come right back into the market again. The position of the market in New York and New England territory is reported as quite firm, and South Atlantic markets are also stiffening somewhat. Steadily decreasing refinery runs, with further cuts in production looked for, are tending to strengthen the statistical position of the market somewhat.

Tank wagon kerosene sales have reflected the increased consumption incidental to the cold spell, and with temperatures in many parts of the territory at the lowest levels for this time of year for the past 30 or 40 years, there has been an appreciable gain in gallonage in retail channels. Large marketers maintaining stations in rural communities, where gasoline gallonage is heavy in the spring, summer and fall seasons and meager during the winter months, are stocking kerosene at these stations and it is expected that heavy sales of burning oil during the winter will in large measure offset the declining sales of motor fuel.

Furnace Oil

The chief development in this week's market was the action of Standard Oil Co. of New Jersey in reducing heating oil, minimum 32 gravity, from 4¾ to 4½ cents per gallon, tank car lots, f.o.b. New York harbor refinery terminals.

The market witnessed quite a flurry of activity this week, with contract shipments picking up steadily. There has been a little price cutting in the retail end of the business. In the local area marketers are quoting 36-40 furnace oil at 8¼ to 8½ cents per gallon, 32-36 gravity at 7 to 7½ cents, and 28-32 gravity at 7 cents per gallon, all delivered tank wagon.

Domestic oil burner manufacturers are still conducting an intensive sales campaign in this territory, and with new low prices quoted on their burners it is reported that a record amount of new installations have been contracted for.

Diesel Oil

Standard Oil Co. of New Jersey has made downward readjustments in Diesel oil quotations at a number of Gulf Coast points. The market was cut 10 cents per barrel to $1.70, bulk, refinery terminals, at Baytown and Ingleside, Tex., effective October 16, and two days later a similar reduction was put into effect at New Orleans, Baton Rouge and Westwego, La. The quotation at East Coast ports remains unchanged at $2 per barrel, bulk, at refinery terminals, with a probability that this quotation will carry forward for the balance of 1930.

Refiners are devoting more attention to sales of Diesel oil for domestic industrial consumption, and steady gains in gallonage are reported from this source. American railways are now seriously interested in the possibilities of Diesel-electric locomotives for short hauls and switching operations, and with a number of installations of this type now in experimental service on various railroads (and reported to be giving a good account of themselves), the outlook for quantity Diesel oil consumption by the railroads is favorable. In addition, there has been a marked trend toward the use of Diesel engines in stationary power plants in recent months, and this end of the market is also expected to witness substantial development.

Marine sales are reported as fairly satisfactory. Sales to vessel operators, it is reported, are still running ahead of comparable 1929 totals, but the rate of increase has slowed down somewhat during recent weeks, due to the laying up of Diesel-burning pleasure craft and some curtailment of activities among large vessel operators.

Fuel Oil

Stocks continue to pile up at East Coast refineries, notwithstanding the cut in refinery operations, and the market position is showing some softness. Stocks held at East Coast refineries on October 18 totaled 11,974,000 bbls., as compared with 11,813,000 bbls. at the close of the previous week.

Marine consumption of bunker fuel is holding up fairly well, but slowing of export trade is beginning to be reflected by curtailed operations in the shipping trade, and with a number of vessels being laid up by steamship companies, the outlook for continued expansion in bunker oil consumption is less favorable.

Refiners are quoting the market unchanged at $1.05 per barrel in bulk at refinery terminals plus the usual differential of 5 cents per barrel for barging alongside within the harbor limits. Contract movement is accounting for the bulk of current volume, although there is a little spot buying developing from day to day.

Industrial demand for bunker oil is quiet along routine lines. Large utility companies operating in East Coast area have been showing considerable interest in the Pacific Coast fuel oil situation during the past several months, and considerable volume has gone to California sellers from consumers who would normally draw their supplies from East Coast refineries.

Gas Oil

Refiners are showing considerable interest in the trend recently discernible among gas manufacturing companies to substitute bunker "C" oil for gas oil in their manufacturing operations. While sales of bunker oil to utilities have cut into gas oil gallonage in some volume this year, refiners believe that this loss in gas oil business to the utilities industry will be more than offset by increasing consumption of gas oil in domestic burners.

The posted price for 28 plus gas oil remains unchanged at 5¼ cents per gallon in tank car lots at refineries. There is still a little of this oil moving at 4¾ cents, but sellers at the inside level are less numerous and the general market level is firming up closer to the 5 cents per gallon level. Stocks of gas oil are still increasing somewhat in this area, but increasing consumption during the winter months is expected to make for a change in the refinery stock situation during the next few months.

Lubs

Irregularity continues in evidence in the cylinder oil market, and, although the price basis is steadying a little, there are still some supplies of off-priced oil available for prompt shipment. The market for 650 steam refined is firm at 23 cents, but 600 Pennsylvania flash has eased off further and is quoted out at 25 cents per gallon, 1 cent under previously existing levels. Movement in bright stocks continues along routine lines with prices unchanged.

Volume in red and pale oils is reflecting current industrial depression in many manufacturing lines in this territory. Refiners have not revised quotations on these oils, however, and report a moderately active movement along contract lines.

Export volume on lub oils continues along curtailed lines, with most of the buying for immediate shipment, and relatively little interest shown in offerings for forward delivery.

Paraffin Wax

Selling pressure and lack of demand have combined to further weaken the market, and prices are quoted fractionally lower this week all along the line. Spot 120-122 a.m.p. fully refined is down an eighth at 2⅞ cents per pound, with 125-127 a.m.p. quoted at 3⅛ cents, 130-132 a.m.p. at 3½ cents, 133-135 a.m.p. at 4¼ cents, and 135-137 a.m.p. at 4½ cents, reductions of an eighth to a quarter cent per pound.

White crude scale, on the other hand, has firmed up, sales being reported at 2.30 cents per pound for 122-124 a.m.p., this quotations being 25 points under the low level of 2.05 recently attained on spot business.

Both domestic buyers and export operations have remained out of the market to a considerable extent this week.

Petroleum Exports

There was some falling off in volume of export movement of refined products through the local port during the week ended October 11, and further declines in shipments in the immediate future were indicated by the paucity of new business reaching export operators from abroad. Sentiment continued optimistic in the market, notwithstanding current dullness, and operators were inclined to look for a turn for the better by the end of the year.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Oct. 18	Oct. 11	Oct. 4
Gasoline	175,000	150,000	625,000
Naphtha	425,000	610,000	475,000
Kerosene	20,000	265,000	150,000
Fuel oil	230,000	12,000	195,000
Lubricating oil	1,185,000	4,000,000	3,165,000
Petroleum, ref.	436,000	2,295,000	2,590,000
	Pounds		
Petrolatum	.....	190,000	.....
Paraffin wax	3,160,000	2,150,000	2,220,000
Refined	.....	490,000	.....
Scale	25,000	780,000	1,125,000
Lubricating grease	656,000	960,000	1,125,000

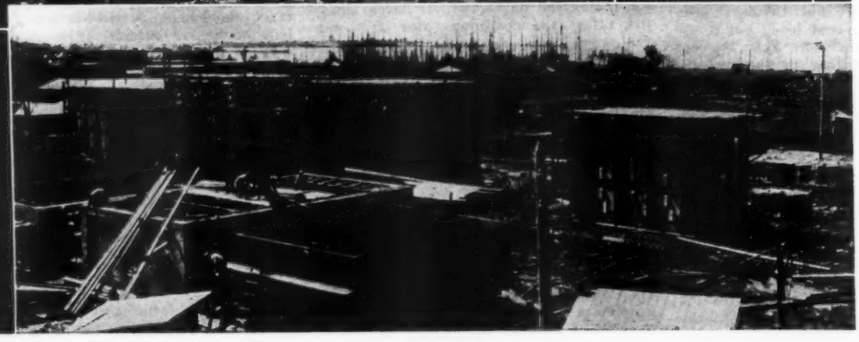
Pending a definite indication of improvement in foreign market conditions, local operators have in most cases entirely withdrawn from the market, in so far as operations for their own account are concerned. In normal years, these operators generally taking a position in the market from quarter to quarter, but under present conditions many of them have decided to confine their operations almost entirely to straight brokerage on their export sales. This has naturally taken a good deal of the normal activity out of the market, but with buying now for actual requirements only and the usual "invisible" stocks out of the way, the refinery market is much more responsive to changes in demand. This, it is felt, should hasten market recovery

(Continued on Page 140)

WINKLER-KOCH PROCESSES IN SOVIET RUSSIA

There is no project too large or too far away for Winkler-Koch Engineers to execute.

Wherever the most modern and efficient processes for refining petroleum are demanded, there Winkler-Koch equipment will be found.



Photos taken of Winkler-Koch distillation units installed at Batoum, U. S. S. R. of Russia.

ENGLISH ASSOCIATE:
A. F. Craig & Co., Ltd., Paisley, Scotland.

EASTERN REPRESENTATIVE:
Frank deGersdorff, Grand Central Terminal Bldg., New York, N. Y.

The WINKLER-KOCH ENGINEERING CO.

Consulting and Construction Engineers
WICHITA, KANSAS

Manufacture of Natural Gasoline

CONSTRUCTION OF TWO EMPIRE PLANTS BEGUN

Construction work has been started by the Empire companies on two new natural gasoline plants, one in the 6-6 area of southern Seminole County, to serve the recently extended producing Konawa area and the other on the Empire-Sullivan lease, 4 miles southwest of Pampa, in Gray County, Texas.

The Konawa Field recently has been extended several locations to the south. In order better to serve the new producers, the Empire's gasoline division decided to build the new plant which will be 3½ miles to the south of the company's Konawa plant, which has been in operation since March 28.

The new plant in the Konawa Field will have an initial capacity of 5,000,000 feet of natural gas daily. The natural gasoline output is indefinite as the gasoline content of the gas probably will be affected by proration lease, and operating conditions. Practically all leases in the territory have been committed to the new Empire plant.

The plant on the Empire-Sullivan lease will be known as the Sullivan plant. It will treat natural gas from the surrounding acreage. The Empire's booster plant, in the center of Section 138, will force gas to the new plant which will produce upwards of 20,000 gallons of gasoline daily.

Upon completion of the two new plants the Empire companies will have a total of 20 gasoline plants in Kansas, Oklahoma and Texas.

TO BUILD 12 BUTANE PLANTS

The Utilities Gas & Electric Co. of Chicago has started construction of 12 butane gas plants in as many cities at a total cost of around $1,200,000, according to Byron T. Gifford, president. The work will employ about 1,600 men. Ten of the plants will be in operation this year. The cities to be served are Tomah and Waupeca, Wis.; Hastings, Minn.; Eldorado, Metropolis and Vandalia, Ill.; Fulton, Ky.; Murfreesboro, Union City and Shelbyville, Tenn.; Gaffney, S. C., and Gainesville, Ga. Plans for butane gas plants at Harrodsburg, Ky., and Prairie du Chien, New London, Viroqua and Richland Centre, Wis., have been made. The Utilities Gas & Electric Co. has contracted with the Skelly Oil Co. of Tulsa for delivery of 4,000,000 gallons of liquefied butane over the next year.

SKELLY BOOSTER PLANT

The Skelly Oil Co. is installing seven compressors on the Ainsworth lease in the southern part of the Oklahoma City Field to return residue gas to the company's wells for gas lift operations. This booster station will operate as a three stage unit for compressing the gas and will make no gasoline in regular operation but provisions have been made to process wet gas at any time it becomes necessary.

An arrangement has been made with the Phillips Petroleum Co. whereby the Phillips company will run the wet gas through its plant and will return the dry gas to the Skelly lease through the booster station.

CONTRACT FOR PLANT LET

LOS ANGELES, Calif., Oct. 27.—The Belridge Oil Co. has let a contract to the J. A. Campbell Co., natural gas engineering concern of Long Beach, for construction of a 450-pound high pressure gasoline plant on the Belridge, Calif., lease. The plant, to handle the gas from the company's well No. 15, is to be completed by December 8.

PRODUCTION OF NATURAL GASOLINE MORE THAN TWO BILLION GALLONS

The natural gasoline industry again established a new record for output in 1929, when a total of 2,233,688,000 gallons was produced, according to statistics compiled by G. R. Hopkins of the United States Bureau of Mines, Department of Commerce. This output represents an increase of 23 per cent over 1928, as compared with an increase of 11 per cent in 1928 over 1927 and an annual increase for the past 10 years of 21 per cent. This record-breaking output of natural gasoline in 1929 was closely related to the material increase in crude production. In 1929 crude oil production for the first time exceeded 1,000,000,000 bbls.; the total of 1,007,323,000 bbls. of crude produced represented an increase of 12 per cent over 1928. While this increase was considerably below the increase in natural-gasoline production given above, it should be noted that much of the flush crude production secured in 1929 came from deep sands in which the gas oil ratio was high. Furthermore, there was a pronounced tendency to erect larger plants and, while the recovery per 1,000 cubic feet of gas treated was below the average, the large quantity of gas put through the plants had a material effect on the total output for the year.

Another stimulating factor in natural gasoline production in 1929 was the rapid growth in the utilization of natural gas. The year marked the completion of several large interstate pipe lines and the number of natural gas consumers gained materially. The total consumption increased 22 per cent and, since practically all of the gas piped is treated for natural gasoline before it is turned into the lines, the production of the latter increased proportionately.

Refiners, the chief users of natural gasoline, utilized 1,851,360,000 gallons of natural gasoline in blends in 1929. This represents an increase of 32 per cent over 1928. This material increase in the utilization of natural gasoline in 1929, in conjunction with a much smaller gain in gasoline output (15 per cent) raised the ratio of natural gasoline utilized to the total gasoline production from 9.3 per cent in 1928 to 10.7 per cent in 1929.

In spite of the material gain in output in 1929, stocks of natural gasoline held by the manufacturers at their plants showed a small decline. This indicates that the rapidly increasing output was readily absorbed by refiners, a situation that resulted more from the fact that the market was essentially a buyer's market than from a desire on the part of refiners to use more natural gasoline. However, it is probable that the small independent refiners, which comprise an important outlet for the natural gasoline not produced by the natural gasoline departments of the major refining companies, made some progress in the technique of blending natural gasoline with the straightrun product in 1929.

Considerable has been heard in recent years of the advisability of constructing storage facilities for natural gasoline for utilization in times of overproduction. The fact that the high point in stock accumulation in 1929, 58,400,000 gallons on May 31, was considerably above the 1928 high, 35,400,000 gallons on March 31, would indicate that there has been some expansion in natural gasoline storage facilities at the plants.

The natural gasoline produced in 1929 had a total value at the plants of $158,410,000, which, while the highest total ever recorded, represents an average value per gallon of only 7.1 cents, the lowest ever recorded. This figure agrees closely with the average spot price for Grade A, Oklahoma natural gasoline, which was 7.05 cents per gallon in 1929. Spot prices were at their highest at the beginning of the year but soon fell as production increased rapidly. The lowest spot prices recorded were just above 6 cents per gallon, probably just above the cost of production; the lowest price recorded in 1928 was 4.13 cents per gallon. Thus 1929 was a year of low prices, with no extreme fluctuations, as contrasted with 1928, when prices more than doubled over a period of less than four months.

Production in California in 1929 amounted to 840,325,000 gallons, an increase over 1928 of 44 per cent. By virtue of this material gain, that State became for the first time the leading producing state. Both Oklahoma and Texas, which rank second and third, respectively, reported gains in output in 1929 and, with California, produced 87 per cent of the total output. The increase in California came largely from the Santa Fe Springs field where rapid drilling of deep sands made large quantities of gas available for treating. The gain in Oklahoma followed the active development of the Seminole district, while that in Texas was an aftermath of the growing demand for Panhandle gas as fuel.

The rapid increase in production in California and the resultant surplus supply were the chief causes behind the inauguration of extensive coastwise movements through the Panama Canal to Atlantic and Gulf ports in the United States. Such shipments to the Atlantic seaboard in 1929 amounted to 30,786,000 gallons; to Gulf ports, 12,054,000 gallons. Exports of natural gasoline, comprising tanker shipments and tank car deliveries to Canada, undoubtedly increased in 1929.

The industry improved its economic position in 1929 by increasing the production of stabilized natural gasoline and through the development of by-products. These two go hand in hand because the principal by-product is liquefied gas, or propane and butane removed from the raw natural gasoline in the process of stabilization. Stabilizing yields three main benefits to the manufacturer, namely, a more uniform product, a natural gasoline that has superior handling qualities and can be shipped in bulk, a by-product, liquefied petroleum gas, which is rapidly becoming a very important source of revenue.

The average yield of natural gasoline per thousand cubic feet of gas treated fell from 1.23 gallons in 1928 to 1.14 gallons in 1929. This marks the first decline in average yield since 1924. All three of the leading producing states showed a decline in yield in 1929; California fell from 1.54 to 1.36 gallons; Oklahoma from 2.25 to 2.15, and Texas from 1.05 to .87. The lowest yields reported were in Ohio and Kentucky, both eastern states; the highest, 2.87, was credited to Arkansas.

Further declines in number of plants using the compression and charcoal process, again increased. The decline in number of compression plants during 1929 was much less than in 1928, indicating that most of the small inefficient plants were dismantled during or before 1928.

The number of plants using the compression process during 1929 totaled 442 as against 620 plants using the absorption process. On the basis of production, the relative importance of the absorption method was more pronounced in 1929; the total production at the compression plants was only 258,937,000 gallons as compared with a total production of 1,950,150,000 gallons at plants using the absorption and combination processes.

During 1929 natural gasoline was produced in 16 states and also in Alaska. Los Angeles County, California, in which are located such prolific producing areas as Long Beach, Santa Fe Springs, Seal Beach and Huntington Beach, again easily ranked first among the producing counties. The total output of that county for 1929 was 563,698,000 gallons, which represented an increase over 1928 of 61 per cent, and was equal to 67 per cent of the total production of the State and 25 per cent of the output of the entire country. Seminole County, Oklahoma, again ranked second with an output of 297,299,000 gallons, or the equivalent of 44 per cent of the State's total. Other important producing counties were Ventura, California; Osage, Oklahoma, and Hutchinson in the Panhandle of Texas.

Stocks of natural gasoline held by plant operators on December 31, 1929, amounted to 26,139,000 gallons, a decline of slightly over 1,000,000 gallons from the previous year. As was the case in 1928, Oklahoma showed the largest decline in natural gasoline stocks during 1929. Stocks of blended motor fuel held by natural gasoline plant operators fell off materially during the year and amounted to only 695,000 gallons on December 31, 1929.

The transportation of natural gasoline by pipe line was stimulated during the past year by rapid growth in the art of welding. In California construction has been finished or is under way on several lines to transport natural gasoline, light crude oil, or both. One such line is the recently completed line from the Kettleman Hills Field to tidewater at Avila, a distance of 88 miles. This line was built to transport natural gasoline but eventually may be used to carry crude oil also.

According to monthly reports, there were 99,834,000 gallons of natural gasoline mixed with crude oil and turned into pipe lines in California in 1929. East of California, this practice continued to be of minor importance and only 13,700,000 gallons were turned into pipe lines over the same period, making a total for the country of 113,534,000 gallons. This compares with 106,616,000 gallons of natural gasoline transported through petroleum pipe lines in 1928. That no greater increase is indicated in the figures is due to the fact that one company transported large quantities of natural gasoline through a pipe line unmixed with crude oil, which shipments were reported as natural gasoline blended at refineries.

During the year 1929 a total of 1,917,693,000,000 cubic feet of natural gas was

(Continued on Page 140)

TO BEGIN OPERATION SOON

LOS ANGELES, Calif., Oct. 27.—Officials of the Superior Oil Co. say its new casinghead gasoline plant in Section 29-21-17, on the North Dome of the Kettleman Hills Field will be in operation within a few days, treating the daily flow of 80,000,000 feet of gas from its No. 1 Huffman. Work on the plant was started September 18 and its construction is believed to have established a record for fast time. The plant, costing about $400,000, will have a capacity of 100,000,000 feet of gas daily.

CONSIDER PETTUS PLANT

SAN ANTONIO, Tex., Oct. 27.—The Union Producing Co. is understood to be arranging to build a natural gasoline plant in the Pettus Field, Texas. The company is laying a pipe line to the field to take the gas. In the upper part of the townsite pool the gas is very wet and some of the wells are flowing about 15 bbls. or more a day of casinghead gasoline. The Simms Oil Co.'s No. 1 Holzmark, a wildcat that came in some weeks ago and located 12 miles or more from the field also yields considerable wet gas.

Brief Items for Petroleum Refiners

TEXAS MARKETERS ELECT W. C. GAYLOR PRESIDENT

W. C. Gaylor of the Gaylor Oil Co., Houston, was chosen president of the Texas Petroleum Marketers Association for the ensuing year at the second annual convention of the organization held October 23 and 24 in the Baker Hotel, Mineral Wells, Tex. The first day's program included an address of welcome by Mayor Charlton Brown of Mineral Wells; the president's annual message by the retiring president, James B. Russ; a discussion of "Petroleum Marketing Practices From a Banker's Viewpoint," by A. E. Thomas of the Continental Bank, Fort Worth, Tex., and a talk on "Competition and the Code," by Paul E. Hadlick, secretary of the marketing division of the American Petroleum Institute. The second day was given over to sessions of the A.P.I. code committee, open forums and the election of officers.

The officers elected in addition to Mr. Gaylor as president follow: Vice presidents, E. J. Marston, Texas Pacific Coal & Oil Co., Fort Worth; E. H. Eddleman, American Refining Co., Wichita Falls; George Bowers, Simms Oil Co., Dallas, and C. M. McNutt, El Paso; secretary, C. A. Slimp, Slimp Oil Co., San Antonio; director counsel, L. H. Flinn, Houston.

The directors chosen are F. R. Schneider, Simms Oil Co., Dallas; Thomas Lombardo, Oleander Oil Co., Beaumont; O. F. Davenport, Laurel Petroleum Co., San Antonio; S. J. Helton, Ranger Oil Co., Houston; John Calhoun, Central Texas Refining Co., Corsicana; A. M. Hughes, Phillips Petroleum Co., Amarillo; V. Anderson, Savage Oil Co., El Paso; John McCoy, Transcontinental Oil Co., Fort Worth; W. B. Ellis, Hillsboro; A. E. Blohm, Temple; J. W. Sandifer, Home Oil Co., Bryan; G. W. Reed, Panhandle Refining Co., Wichita Falls.

PENNZOIL EXECUTIVE STAFF IS ENLARGED

OIL CITY, Pa., Oct. 27.—The executive staff of the Pennzoil Co. has been enlarged by addition of two active vice presidents and a promotion manager who will assist the president, C. L. Suhr.

Byron S. Phillips of New York City, a former Pennzoil official, has rejoined the company as director of the sales promotion department, a newly created office. Mr. Phillips was advertising manager of the Pennzoil Co. of California for several years and later occupied the same position with the California Petroleum Co. of Los Angeles, from which position he was taken to New York by The Texas Company as assistant general advertising manager.

Jay F. Vandeventer, who joints Pennzoil as executive vice president, started in the oil industry in 1904 with the Prairie Oil & Gas Co., working on the lease. From 1906 to 1917 he was with the Barnsdall Oil & Refining Co. as assistant treasurer and director. During the succeeding two years he was assistant treasurer of Carter Oil Co. in Tulsa. In 1919 he joined the South Penn Oil Co. as general auditor and later became a director. Early this year he was elected a director of the Pennzoil Co. and now will take an active part in the affairs of the organization.

A. S. Matthews, a former Oil City resident who for years has been vice president and general manager of Pennzoil Co. of New York and manager of the eastern division with headquarters in New York, returns here as vice president of the Pennzoil Co. in charge of oil sales throughout the entire territory.

RAUCH SALES MANAGER FOR INDIAN REFINING

Henry L. Rauch, formerly manager of the Indianapolis division of the Indian Refining Co., has been made sales manager of the company, following the resignation of A. H. White. Mr. White will

Henry L. Rauch

remain with the company in an advisory capacity until the end of the year.

Mr. Rauch has been in the service of the Indian company about 12 years. He is chairman of the Indiana division of the Code of Marketing Practices.

SUPREME COURT TO HEAR APPEAL ON JANUARY 12

The United States Supreme Court has set January 12, 1931, as the date for hearing the appeal filed by the Standard Oil Co. of Indiana and other oil companies convicted of violating the Sherman antitrust law through agreements relating to use of patents for producing cracked gasoline.

Together with The Texas Company, the Gasoline Products Co., Inc., the Standard Oil Co. of New Jersey and the Standard Development Co., Standard Oil of Indiana owned or controlled patents for producing cracked gasoline. Each granted licenses to refiners to use the patents, the total being more than 60.

The Government brought suit in Chicago charging the agreements were in restraint of trade, and for the purpose of attempting to monopolize trade in cracked gasoline in violation of the Sherman act. A statutory three-judge district court sustained the Government and the companies appealed to the supreme court.

Counsel for Standard Oil of Indiana and 27 other companies joined in urging the highest court, because of the public interest in the outcome, to expedite its decision.

THOMAS JOINS MID-CONTINENT

R. H. Thomas, formerly manager of the Mason City, Iowa, sales division of the Standard Oil Co. of Indiana, has been made manager of the Mid-Continent Petroleum Corp.'s new western division, with headquarters in Lincoln, Nebr., according to D. C. Wixson, the Mid-Continent's manager of service station operations. For the last two years Mr. Thomas has been in California, where he went in search of health.

SAMPLES FOR VISCOSITY CHECK TESTS AVAILABLE

As a result of pronounced variations in the viscosity of lubricating oils offered for similar uses, and in order to standardize the viscosity of motor lubricants within definite class ranges such as those established by the S.A.E., the committee on viscosity standards of the A.P.I. was appointed to prepare type samples of oil for general distribution for checking purposes. This committee, under the direction of Dr. T. G. Delbridge, in charge of manufacturing for the Atlantic Refining Co., is now prepared to furnish two oils for viscosity standardization purposes. Viscosities on each of these oils have been accurately determined by each representative on the committee, which includes the Bureau of Standards. All members agree well within one-half of 1 per cent. The two viscosity standards are designated as "A.P.I. Alpha," suitable for Saybolt Universal viscosity at 100° F., and "A.P.I. Beta," suitable for Saybolt Universal at 210° F., and for Saybolt Furol at 122° F. Accurate results with these samples require strict adherence to A.S.T.M. Standard Method D88-30 as to both apparatus and procedure.

These oils will be shipped in glass by express, collect, the price being $5 for each quart sample and $10 for each gallon sample. Application should be accompanied by check drawn to the order of "T. G. Delbridge, Chairman, Committee on Viscosity Standards" and should be addressed to 3144 Passyunk Avenue, Philadelphia, Pa. The committee reserves the right to decline acceptance of applications without further notice.

The personnel of the committee is as follows: Dr. T. G. Delbridge (chairman), the Atlantic Refining Co.; Dr. E. W. Dean, Standard Inspection Laboratory; Dr. W. H. Herschel, United States Bureau of Standards; K. G. Mackenzie, The Texas Company; Dr. L. W. Parsons, the Tide Water Oil Co.; E. B. Phillips, Sinclair Refining Co.; Dr. J. B. Rather, Standard Oil Co. of New York; Dr. J. B. Terry, Standard Oil Co. of California, and Dr. H. V. Hume (secretary), the Atlantic Refining Co.

KETTLEMAN HILLS REFINERY

LOS ANGELES, Calif., Oct. 27.—The Kettleman Hills Gasoline Co. has closed a deal with the Santa Fe Railroad whereby it has obtained a site for the construction of a new refinery in Hanford, about 20 miles from the center of Kettleman Hills. Construction work is to get under way immediately for a plant to handle about 1,000 bbls. of crude a day. Government royalty oil will be trucked from Kettleman Hills to Hanford, from which point the refined products will be distributed. The company was awarded the contract for government royalty oil from Kettleman Hills on its bid of $2.57 a barrel.

ANDERSON WITH DEER OIL

C. W. Anderson, formerly with Chestnut & Smith, is now sales manager for the Deer Oil Corp., which has refineries in Luling and Brownwood, Tex., and offices in Houston and San Antonio, Tex., and Tulsa. Mr. Anderson is located in Houston.

MADE OHIO REGIONAL MANAGER

Carl E. Gerteis has been made Ohio regional manager for the Shell Petroleum Corp., in charge of all sales activities in that State and the western part of West Virginia, with headquarters in Cleveland. Mr. Gerteis formerly was manager of the Ohio division for Shell.

GRAVE QUESTIONS FACE MEETING OF MARKETERS

The three-day annual marketing congress of the Independent Oil Men of America will be held in the Hotel Statler, St. Louis, Mo., beginning Monday, November 3. On Sunday, November 2, the trustees will hold their meeting. The organization management says there are many important problems to be settled.

The members and other oil men present will be guests at a luncheon given by the St. Louis Petroleum Club Monday noon in the ballroom of the Statler Hotel. Allen H. Hinchey will speak on "The American Community and the Independents." The speaker is from the Missouri State Teachers College. The oil men will meet in open session following the luncheon and Wirt Franklin, president of Independent Petroleum Association of America, on "The Necessity for Independent Co-operation." V. C. Seger will talk on "United and Uniform Activities."

On Tuesday J. Frank Grimes, president of the Independent Grocers Alliance, is to speak on "The Unused Power of the Individual in Business," and Fred Nater of the Missouri Survey Commission on "Equitable Distribution and Taxation." President R. H. Hilp will review the record of the independent oil men. The program will close with a talk by the secretary, A. Y. Hinchey, "Do It Now." There will be an afternoon bridge party for the ladies present Tuesday and a theater party and a stag gathering that evening.

The morning of the final day will be used for a closed session of the members. There will be a brief open session in the afternoon to be followed by a banquet in the evening.

TAYLOR REFINERY OPERATING

SAN ANTONIO, Tex., Oct. 27.—The new Taylor refinery in Taylor, Tex., in Williamson County, began operations last week and was expecting to begin shipping its products within a few days. The capacity of the plant is reported as 6,600 bbls. of crude oil daily and it will be operated to about 5,000 bbls. daily at first. The fuel oil supply has been contracted to the Missouri Pacific and Missouri-Kansas-Texas Railroads and loading rack space has been built to load 40 cars at a time. A pipe line from the Chapman Pool, about 10 miles southeast of Taylor, will supply the refinery with crude from that pool. G. L. Rowsey is president of the Company; E. L. Chapman, Robert T. Piner and G. M. Dodson are vice presidents, and Crawford Boothe is secretary and treasurer. H. B. Cole is manager of the plant. The company has leased 125 tank cars and has arranged for 175 more.

GASOLINE TAX VALID

The St. Louis gasoline tax of one-half cent per gallon is valid, the Missouri supreme court has held in a suit instituted by the Automobile Gasoline Co. Sales of gasoline are not included in the basis of the St. Louis license tax on merchants, it was shown in reply to the company's contention that the ordinance amounted to double taxations.

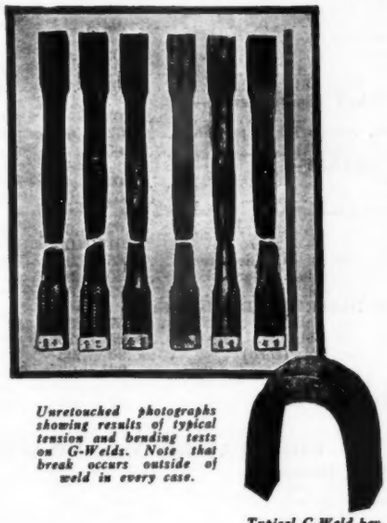
PURE OIL TAKES ON ETHYL

CHICAGO, Oct. 27.—The Pure Oil Co. will handle Ethyl Gasoline in its northern state stations and through its dealers in that territory. It may extend the sale of the Ethylized material on a larger scale to the southern stations but there is not so much demand for antiknock gasoline in the South during the winter.

Announcing G-Weld

TRADE MARK

.... the new Griscom-Russell welding process that surpasses riveting



Unretouched photographs showing results of typical tension and bending tests on G-Welds. Note that break occurs outside of weld in every case.

Typical G-Weld bar bent almost double without fracture.

THE new Griscom-Russell G-Weld has been developed for general use on all pressure vessels. Thorough laboratory and field tests on a great variety of sizes and shapes of vessels with different thicknesses of walls have conclusively proven the following superiorities of welds made by this process:

Tensional Strength: Exhaustive tests on typical G-Weld bars show that the ultimate strength of the weld is consistently greater than that of the adjacent metal. In no test does failure occur at the weld.

Ductility: In all cases where G-Weld bars have been subjected to cold bend tests reaching an outside fibre elongation of 20% with the weld at the center of the bend, no fracture has occurred.

Physical Characteristics: Whether G-Weld samples are examined at machined surfaces or at sections cut through the weld, they invariably show a dense, homogeneous structure of sound metal throughout the weld, thorough union with the plate, freedom from cracks or other flaws, and no indication of overheating or other damage.

Resistance to Corrosion: Accelerated laboratory tests of G-Weld bars in dilute sulphuric acid solutions show that the weld is fully as resistant to corrosion as the adjacent plate.

The G-Weld is acceptable without reservation by insurance companies. Samples are available for test, and further information will gladly be furnished.

G-Welds are always marked with the G-Weld Trade Mark

THE GRISCOM-RUSSELL CO.
285 Madison Ave., New York
Branches in principal cities.

Group of typical G-R apparatus welded by G-Weld process.

Griscom-Russell

Heat Transfer Apparatus

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Oct. 28		Oct. 21		Oct. 14	
50-52 450 endpoint	.05	.05¼	.05¼	.05½	.05½	.06¼
56-58 450 endpoint	.04¾	.05	.05	.05½	.05¼	.06
*58-60 437 endpoint (U. S. Motor)	.0560		.0608		.0619	
*60-62 437 endpoint	†.05¼	.05½	.05½	.06	†.05¾	.06
*60-62 400 endpoint	.0631		.0663		.0663	
*64-66 375 endpoint	.0688		†.06¼		†.06¼	.06½
68-70 360 endpoint	.05¾	.06	.06½	.06¾	.06¾	.07¼
64-66 437 endpoint (blend)	.05	.05½	.05¼	.05¾	.05½	.06

*Weighted average prices October 27, 20 and 13 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

NORTH TEXAS—						
50-52 450 endpoint	.05	.05¼	.05¼	.05½	.05¼	.05½
58-60 450 endpoint	.05	.05¼	.05¼	.05½	.05¼	.05½
58-60 437 endpoint (U. S. Motor)	.05	.05¼	.05¼	.05½	.05¼	.05½
60-62 400 endpoint	.05¼	.05½	.05½	.05¾	.05½	.05¾
64-66 390 endpoint	.05½		.05⅝	.05¾	.05⅝	.05¾
64-66 375 endpoint	.05¾		.05¾	.06	.05¾	.06
68-70 360 endpoint	.06	.06¼	.06¼	.06½	.06¼	.06½
64-66 437 endpoint (blend)	.05	.05¼	.05¼	.05½	.05¼	.05½
*NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.06¼	.06½	.06½	.07	.06½	.07
*ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.06¼	.06½	.06½	.07	.06½	.07
PENNSYLVANIA—						
52-54 Naphtha	.06¾		.06¾		.06¾	
54-56 Naphtha	.06¾		.06¾	.07	.06¾	.07
58-60 Gasoline	.06¾		.06¾	.07	.06½	.06¾
60 Gasoline	.06¾	.07	.06¾	.07	.06¾	.07
62 Gasoline	.07		.07	.07¼	.07	.07¼
64 Gasoline	.07½		.07½	.08	.07½	.08
68-70 350 endpoint gasoline	.08½		.08½	.08¾	.08½	.08¾
CALIFORNIA—						
†58-60 437 endpoint (U. S. Motor) domestic	.08½	.11	.08½	.11	.08½	.10½
†60-62 400 endpoint domestic gasoline	.10	.12	.10	.12	.10	.11½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05¼		.05¼		.05½	.05¾
56-58 450 endpoint	.05		.05	.05¼	.05½	.05¾
58-60 437 endpoint (U. S. Motor)	.04¾	.05	.05	.05½	.05¼	.05½
60-62 400 endpoint	.05	.05¼	.05¼	.05½	.05½	.06
64-66 375 endpoint	.05¾	.06	.06¾	.07	.06	.06½
68-70 360 endpoint	.06	.06¼	.07	.07¼	.06¼	.06½
64-66 437 endpoint (blend)	.05¼	.05¾	.05¼	.05¾	.05¾	.06¼
‡GULF COAST (Export)—						
58-60 U. S. Motor	.07		.07		.07	
60-62 400 endpoint	.07½		.07½		.07½	
61-63 390 endpoint	.07¾		.07¾		.07¾	
64-66 375 endpoint	.08		.08		.08	

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption. ‡Prices posted by Export Petroleum Association, Inc.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Oct. 28		Oct. 21		Oct. 14	
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¾		.05¼		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾		.05¼		.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.04¾		.05¼		.05¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¾		.05¼		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾		.05¼		.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.04¾		.05¼		.05¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04¾	.05	.05¼	.05½	.05¾	.06
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾		.05¼	.05½	.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.04¾		.05¼		.05¾	
CALIFORNIA—						
75-75, 375-390 endpoint	.07	.09	.07	.09	.07	.08½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¾		.05¼		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾		.05¼		.05¾	

BURNING OIL

OKLAHOMA (Group 3)—	Oct. 28		Oct. 21		Oct. 14	
41-43 water white kerosene	.03⅛	.03¾	.03⅛	.03¾	.03⅛	.03¾
42-44 water white kerosene	.03¼	.03⅞	.03¼	.03⅞	.03⅜	.04
NORTH TEXAS—						
41-43 water white kerosene	.03	.03¼	.03	.03¼	.03	.03¼
40-41 water white kerosene	.02⅞	.03	.02⅞	.03	.02⅞	.03
*NORTH LOUISIANA—						
41-43 water white kerosene	.04	.04¼	.04	.04¼	.04	.04¼
*ARKANSAS—						
41-43 water white kerosene	.04	.04¼	.04	.04¼	.04	.04¼
PENNSYLVANIA—						
43 Kerosene prime white	.04¾		.04¾		.04¾	
45 Kerosene water white	.05	.05¼	.05	.05¼	.05	.05¼
46 Kerosene water white	.05	.05¼	.05	.05¼	.05	.05¼
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05	.06	.05	.06	.04¾	.06
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.03	.03¼	.03	.03⅜	.03¼	.03½
42-44 water white kerosene	.03¼	.03½	.03¼	.03½	.03½	.03¾
†GULF COAST (Export)—						
41-43 prime white	.06		.06		.06	
41-43 water white	.05		.05		.05	

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Prices posted by Export Petroleum Association, Inc.

FUEL OIL

OKLAHOMA (Group 3)—	Oct. 28		Oct. 21		Oct. 14	
Below 18 gravity Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
18-22 Fuel Oil, per bbl.	.52½	.57½	.47½	.52½	.47½	.52½
20-22 Fuel Oil, per bbl.	.55	.60	.50	.57½	.50	.57½
22-26 Fuel Oil, per bbl.	.60	.65	.55	.60	.55	.60
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
26-30 Fuel Oil, per bbl.	.70	.75	.70	.80	.70	.80
28-30 Fuel Oil, per bbl.	.80	.90	.85	.90	.85	.90
32-36 Gas Oil (industrial)	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
32-36 Gas Oil (straw color, high cold test)	.02¼	.02½	.02¼	.02½	.02¼	.02½
32-36 Gas Oil (straw color, low cold test)	.02⅝	.02⅞	.02⅝	.02¾	.02⅝	.02¾
36-38 Distillate	.02¾	.02⅞	.02¾	.02⅞	.02¾	.02⅞
38-40 Straw Distillate	.02¾	.03¼	.02¾	.03¼	.02¾	.03¼
NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.40	.50	.35	.50	.35	.50
24-26 Fuel Oil, per bbl.	.55	.65	.55	.65	.55	.65
32-36 Gas Oil (industrial)	.02	.02¼	.02	.02¼	.02	.02¼
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.80	.85	.80	.85	.80	.85
30-32 Gas Oil	.02⅞		.02⅞		.02⅞	
*ARKANSAS—						
33-36 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02¾	.02⅞	.02¾	.02⅞	.02¾	.02⅞
16-22 Refinery Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
GULF COAST (South Texas)—						
Gas Oil	.03¾		.03¾		.03¾	
Bunker C Fuel (cargo lots), per bbl.	.62½	.67½	.65	.70	.65	.70
Bunker C Fuel (small lots)	1.00		1.00		1.00	
PENNSYLVANIA—						
30-34 Fuel Oil	.03¾		.04		.04	
36-40 Fuel Oil	.03⅞	.04	.04	.04¼	.04	.04¼
CALIFORNIA—						
33-36 Distillate	.02	.02½	.02	.02½	.02	.02½
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-20 Fuel Oil, Bunker (at tidewater)	.65	.95	.65	.95	.65	.95
15-20 Fuel Oil (cargo lots), per bbl.	.60	.85	.60	.85	.55	.85
27 plus Diesel, per bbl.	.85	1.00	.85	1.00	.85	1.00
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.57½	.62½	.55	.60	.52½	.60
22-26 Fuel Oil, per bbl.	.65	.70	.62½	.67½	.60	.65
28-30 Fuel Oil, per bbl. (zero)	.90	.95	.90	.95	.87½	.92½
32-36 Gas Oil (zero)	.02½	.02⅞	.02½	.02⅞	.02½	.02⅞
32-36 Gas Oil (industrial)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03

*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Oct. 28		Oct. 21		Oct. 14	
100 vis., 2 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06½
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05½	.06
150 vis., 3 color, 20-25 cold test	.07		.07		.07¼	.07½
150 vis., 4 color, 20-25 cold test	.06½		.06½		.07	
180 vis., 3 color, 23-28 cold test	.08½		.08½		.08½	.09
180 vis., 4 color, 23-28 cold test	.08		.08		.08¼	.08½
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.08	
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.10	.10¼
200 vis., 4 color, 23-28 cold test	.09½		.09½		.09½	.10
200 vis., 5 color, 23-28 cold test	.09		.09		.09¼	.09½
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13½	.14
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12½	.13
240 vis., 5 color, 25-30 cold test	.11¼	.11½	.11¼	.11½	.11½	.12
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	.16
280 vis., 4 color, 25-30 cold test	.14½		.14½		.14½	.15
280 vis., 5 color, 25-30 cold test	.13½		.13½		.13½	.14
Cylinder Stocks:						
600, steam refined, light green	.08	.10	.08	.10	.08	.12
600, steam refined, dark green	.05	.06	.05	.06	.05	.08
190-200 vis., D color, Bright Stocks	.28		.28		.30	
150-160 vis., D color, Bright Stocks	.22	.23	.22	.23	.23	.25
*150-160 vis., D color, Bright Stocks	.21	.22	.21	.22	.21	.23
150-160 vis., E color, Bright Stocks	.20	.22	.20	.22	.20	.23
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02⅛	.02	.02⅛

*High cold test. All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06½	.05½	.06½	.05½	.06½
34 Sundebloom	.05½		.05½		.05½	
36 Miners' Neutral	.05¾		.05¾		.05¾	
150, 3 color	.11	.12½	.11¼	.12¾	.11½	.13
180, 3 color	.15½	.16½	.16	.17	.16	.17
200, 3 color	.17	.17½	.17½	.18	.17½	.18
220, 3 color	.21	.22	.21	.22	.21	.22
600, steam refined	.11	.12	.11	.12	.11	.12
635, steam refined	.17	.18	.17	.18	.16	.17
650, steam refined	.15½	.16½	.15½	.16½	.15½	.16½
600, Pennsylvania Flash	.17	.18	.17	.18	.17	.18
630, Pennsylvania Flash	.24½	.25½	.24½	.25½	.24½	.25½
600, E filtered	.15	.17	.15	.17	.15	.17
600, D filtered	.19	.21	.19	.21	.19	.21
Pennsylvania Bright Stocks	.22	.23	.22	.23	.22	.23
*122-124 White Crude Scale Wax	.02⅛		.02⅛		.02⅜	
124-126 White Crude Scale Wax	.02¼		.02¼		.02⅜	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06¼	.06½	.06½	.06¾	.06½	.06¾
200 vis., 3 color, pale oil	.08½	.09	.08½	.09	.08½	.09
300 vis., 3 color, pale oil	.09¾	.10	.09¾	.10	.09¾	.10
500 vis., 3½ color, pale oil	.11	.11¼	.11	.11¼	.11	.11¼
750 vis., 3½ color, pale oil	.12½	.12¾	.12½	.12¾	.12½	.12¾
1,200 vis., 3½ color, pale oil	.15	.15¼	.15	.15¼	.15	.15¼
2,000 vis., 4 color, pale oil	.16	.16½	.16	.16½	.16	.16½
200 vis., 5-6 color, red oil	.07¾	.08	.07¾	.08	.07¾	.08
300 vis., 5-6 color, red oil	.09	.09¼	.09	.09¼	.09	.09¼
500 vis., 5-6 color, red oil	.10¼	.10½	.10¼	.10½	.10¼	.10½
750 vis., 5-6 color, red oil	.11¾	.12	.11¾	.12	.11¾	.12
1,200 vis., 5-6 color, red oil	.14	.14½	.14	.14½	.14	.14½
2,000 vis., 6 plus color, red oil	.16	.16¼	.16	.16¼	.16	.16¼

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—						
130 vis., 2½-3 color	.09	.09½	.09	.09½	.09	.09½
200 vis., 2½-3 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 3-3½ color	.10¾	.11½	.10¾	.11½	.10¾	.11½
350 vis., 3½-4 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
400 vis., 3½-4 color	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
Red Neutral:						
200 vis., 4½-5 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 5-6 color	.10¾	.11½	.10¾	.11¼	.10¾	.11¼
400 vis., 5-6 color	.12	.12½	.12	.12½	.12	.12½
500 vis., 4½-5 color	.13	.13½	.13	.13½	.13	.13½
500 vis., 5-6½ color	.13	.13¾	.13	.13½	.13	.13½
600 vis., 6½ plus color	.13½	.14½	.13½	.14½	.13½	.14½

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Oct. 28		Oct. 21		Oct. 14	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.07½	.08¼	.07¾		.07¾	
Kerosene, water white, 41-43	.06¾		.06¾		.06¾	
*Fuel Oil, Bunker "C," 41-43	1.05		1.05		1.05	
†Fuel Oil Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 28 gravity plus	.04¾	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04½		.04¾		.04¾	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.03		.03	
125-127 a.m.p., per lb.	.03⅛		.03¼		.03¼	
130-132 a.m.p., per lb.	.03½		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04¼		.04⅜		.04⅜	
135-137 a.m.p., per lb.	.04½		.046		.046	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.03¼		.03¼		.03¼	
Extra Amber	.03⅜		.03⅜		.03⅜	
Cream	.06		.06		.06	
Lily White	.06¾		.06¾		.06¾	
Snow White	.08		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents per barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	Oct. 28	Oct. 21	Oct. 14
600, steam refined cylinder stocks, in bbls.	.17	.17	.16½
635, steam refined	.19	.19	.18½
650, steam refined	.23	.23	.22½
600, Pennsylvania Flash	.25	.26	.26
630, Pennsylvania Flash	.29	.29	.29
600, Warren E	.24	.24	.24
600, Oil City E	.23	.23	.23
Light 140-150 Bright Stocks	.29	.29	.29
Dark 140-150 Bright Stocks	.27	.27	.27

LOS ANGELES EXPORT PRICES

	Oct. 28		Oct. 21		Oct. 14	
Kerosene, water white	.04¾	.06¼	.04¾	.06¼	.04½	.06
*U. S. Motor Gasoline, 53-55, 437 e.p.	.06½	.07½	.06½	.07½	.06½	.07½
*60-62, 400 endpoint gasoline	.08¼	.09½	.08¼	.09½	.08¼	.09½

*Prices on coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (Oct. 28) ..... $ .75
Other fields ..... See gravity table

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock, Mitchell and Ector ..... See gravity table, Column 3
Pecos and Winkler ..... See gravity table, Column 9
Chalk† (April 10, 1930) ..... $ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (April 11, 1930) ..... $ .90
Smackover, 24 gravity and above (April 11, 1930) 1.05
Carterville, Sarepta and Cotton Valley, below 36 gravity (April 11, 1930) ..... .95
Bellevue (April 11, 1930) 1.15
Urania (April 11, 1930) ..... .95
East El Dorado (April 11, 1930) ..... .90
Other fields ..... See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Magnolia Petroleum Co.

GULF COAST

Grade A (Oct. 28, 1930)* $1.00
Grade B, 25° and upward .. See gravity table
Jennings, La., (April 10, 1930)† 1.10
Refugio (light) ..... Same as Grade B
Refugio (heavy) (Oct. 28, 1930)* ..... .75
Sorrento (April 10, 1930)‡ 1.10
Markham (April 10, 1930)‖ ..... .85
High Island (April 10, 1930)‖ ..... .95

*Humble Oil & Refining Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‖Texas Pipe Line Co. ¶Posted by Gulf Pipe Line Co. ‖Humble Oil & Refining Co. and Gulf Coast Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.

Iles (Feb. 15, 1930) ..... $ .87
33 gravity and above ..... .87
Under 33 gravity ..... .65
Dutton Creek (Oct. 28, 1930) 1.01
Rock Creek, Wyo. (Oct. 28, 1930) 1.01
Salt Creek ..... See gravity table
Big Muddy (Oct. 28, 1930) 1.04
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light (Oct. 28, 1930) 1.25
Mule Creek (May 21, 1929) 1.20
Elk Basin (Oct. 28, 1930) 1.25
Lance Creek (Oct. 28,1930) 1.33
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage (Oct. 28, 1930) 1.00
Lost Soldier (contract, May 22) 1.00
Hamilton Dome (March 14, 1927) ..... .85
Greybull (Oct. 28, 1930) 1.35
Torchlight (Oct. 28, 1930) 1.35
Cat Creek (Oct. 28, 1930) 1.25
Pondera (Montana) (Oct. 28, 1930) 1.45
Sunburst (Montana) (Oct. 28, 1930) 1.55
Hogback (Feb. 15, 1930) 1.40
Artesia (New Mexico) (Oct. 28, 1930) ..... .75
Lea County ..... See gravity table

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Re-

(Continued on Page 136)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Oklahoma-Kansas N. C. Texas	2 North La.-Ark.	3 Crane, Upton, Ector, Crockett, Howard, Glasscock, Mitchell, (West Texas) Lea, N. M.	4 Wheeler County (Texas Panhandle)	5 Gray County (Texas Panhandle)	6 Carson and Hutchinson (Texas Panhandle)	7 Salt Creek, Wyo.	8 Stephens, Ark.	9 Pecos-Winkler (West Texas)	10 Grade B Gulf Coast and Refugio Texas
Below 25	....	.72	.50	....	....	....	....	....	.55	.75
25 to 25.9	....	.77	.52	....	....	....	....	....	.57	.92
26 to 26.9	....	.82	.54	....	....	....	....	....	.59	.94
27 to 27.9	....	.87	.56	....	....	....	....	.76	.61	.96
28 to 28.9	....	.92	.58	....	....	....	....	.81	.63	.98
Below 29	.65	....	.58	....	.50	.45	....	....	....	....
29 to 29.9	.69	.97	.60	.75½	.54	.49	.69	.86	.65	1.00
30 to 30.9	.73	1.02	.62	.80½	.58	.53	.73	.91	.67	1.02
31 to 31.9	.77	1.07	.64	.85½	.62	.57	.77	.96	.69	1 04
32 to 32.9	.81	1.12	.66	.90½	.66	.61	.81	1.01	.71	1 06
33 to 33.9	.85	1.17	.68	.95½	.70	.65	.85	....	.73	1.08
34 to 34.9	.89	1.22	.70	1.00½	.74	.69	.89	....	.75	1.10
35 to 35.9	.92	1.25½	.72	1.04	.77	.72	.92	....	.77	1.12
36 to 36.9	.95	1 29	.74	1.07½	.80	.75	.95	....	.79	1.14
37 to 37.9	.98	1.32½	....	1.11	.83	.78	.98	....	....	1.16
38 to 38.9	1 01	1 36	....	1.14½	.86	.81	....	....	....	1.18
39 to 39.9	1 04	1.39½	....	1.18	.89	.84	....	....	....	1 20
40 to 40.9	1.07	1.43	....	1.21½	.92	.87	....	....	....	1.22
41 to 41.9	1.10	1.46½	....	1.25	....	....	....	....	....	....
42 to 42.9	1.13	1.50	....	1.28½	....	....	....	....	....	....
43 to 43.9	1.16	1.53½	....	1 32	....	....	....	....	....	....
44 and above	1.19	1.57	....	1.32½	....	....	....	....	....	....

Column 1—Above prices posted for Oklahoma and Kansas on October 25 by Stanolind Crude Oil Purchasing Co. On October 27 the Prairie Oil & Gas Co. met the Stanolind prices and applied them also to the whole North Central Texas areas where it buys oil. Stanolind and Magnolia Petroleum Co. had applied the schedule to all the Texas fields in which they buy on a gravity basis on October 17. Magnolia adopted the Stanolind prices in Oklahoma and Kansas from 29 degrees upward on October 27, but also posted below 26 degrees 53 cents; 26-26.9 degrees at 57 cents; and 27-27.9, 61 cents. Carter Oil Co. met Oklahoma-Kansas prices on October 28 up to 39-39.9 at $1.04. Carter posted $1.07 for 40 degrees and above. Other companies also adopted the Stanolind schedule in Oklahoma and Kansas. Humble Oil & Refining Co. adopted the Stanolind prices in all the fields of North Central Texas in which it buys oil but made a top price of $1.07 for 40 degrees and above. North Central Texas includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona, Moran and Corsicana light. On October 28 Magnolia made a top price of $1.07 for 40 degrees and above.

Column 2—North Louisiana and Arkansas include Caddo, Bull Bayou, Crichton, Cotton Valley (above 36 gravity), DeSoto, Haynesville, Homer, El Dorado and Rainbow. The Texas Company posted North Louisiana and Arkansas on April 10, and Standard of Louisiana posted on April 11, followed by other companies, but Magnolia's price schedule begins with below 28 gravity at 87 cents.

Column 3—Posted by Humble Oil & Refining Co. on October 28.

Column 4—Humble Oil & Refining Co., Magnolia Petroleum Co. and Prairie Oil & Gas Co., April 10, 1930.

Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., and Prairie Oil & Gas Co., October 28.

Column 6—Humble Oil & Refining Co., Magnolia, and Prairie, October 28.

Column 7—Midwest Refining Co. on October 28. All crude over 37 degrees 98 cents.

Column 8—Louisiana Oil & Refining Co., April 11.

Column 9—Humble Oil & Refining Co., October 28.

Column 10—Humble Oil & Refining Co., October 28.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co. (effective September 15, 1930), Union Oil Co. (effective September 15, 1930)

Gravity—	1 Long Beach, Seal Beach, Alamitos Hts., Huntington Beach, Inglewood, Torrance, Richfield, Olinda, Brea Canyon	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge	8 Orcutt, Ventura, Rincon	9 Ventura Avenue	10 Elwood Terrace	11 Athens, Rosecrans, Dominguez
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	1.04	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.12	1.08	1.06	1.08	1.05	1.04	1.04	1.08	1.05	....	1.12
25 to 25.9	1.17	1.12	1.10	1.11	1.09	1.06	1.06	1.11	1.10	....	1.17
26 to 26.9	1.22	1.16	1.14	1.15	1.13	1.08	1.08	1.15	1.15	....	1.22
27 to 27.9	1.26	1.21	1.18	1.19	1.18	1.11	1.10	....	1.19	....	1.27
28 to 28.9	1.30	1.25	1.23	1.23	1.22	1.15	....	....	1.23	....	1.32
29 to 29.9	1.34	1.29	1.29	1.26	1.28	1.19	....	....	1.27	....	1.37
30 to 30.9	1.38	1.33	1.35	1.29	1.33	1.23	....	....	1.31	....	1.42
31 to 31.9	1.43	....	1.40	....	1.38	1.27	....	....	1.36	....	1.47
32 to 32.9	1.48	....	1.47	....	1.43	1.31	....	....	1.41	....	1.52
33 to 33.9	....	....	1.53	....	1.48	1.35	....	....	1.47	....	1.57
34 to 34.9	....	....	1.59	....	1.53	1.39	....	....	1.53	1.32	1.62
35 to 35.9	....	....	1.65	....	1.58	1.43	....	....	1.59	1.39	1.66
36 to 36.9	....	....	....	....	1.63	....	....	....	....	1.46	1.72
37 to 37.9	....	....	....	....	1.68	....	....	....	....	1.53	1.78
38 to 38.9	....	....	....	....	1.73	....	....	....	....	1.60	1.84
39 to 39.9	....	....	....	....	1.78	....	....	....	....	1.66	1.90
40 to 40.9	....	....	....	....	....	....	....	....	....	1.73	1.96
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.02
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.08

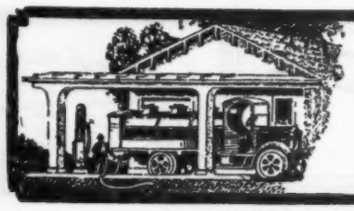
Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11 the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents. Fruitvale, posted by General Petroleum Co., 11-13.9, 50 cents; 14 gravity and above, 55 cents.

Column 1—S'gnal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

(Continued on Page 140)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Oct. 28

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Chicago†	16.00	17.0	3.0	11.0
Decatur, Ill.	16.4	16.4	3.0	11.0
E. St. Louis	16.7	14.7	3.0	10.2
Joliet	16.4	17.4	3.0	11.0
Peoria	16.4	14.0	3.0	11.0
Quincy	16.2	17.2	3 0	10.8
Davenport, Ia.	16.5	16.5	3.0	11.3
Des Moines	15.5	15.5	3.0	11.3
Keokuk	16.5	17.5	3.0	11.3
Sioux City	16.1	14.9	3.0	10.9
Duluth, Minn.	17.5	16.4	3.0	11 9
Mankato	14.0	14.0	3.0	11.7
Minneapolis	17.0	17.0	3.0	11.9
La Cross, Wis.	16.2	17.2	2 0	12.0
Milwaukee	16.1	15.0	2.0	10.9
Madison	15.3	15.3	3.0	11.1
Detroit, Mich.	16.8	14.3	3.0	12.7
Grand Rapids	15.7	16.7	3 0	12.6
Saginaw	14.3	16.9	3.0	12.8
Evansville, Ind.	17.1	18.1	4.0	11.9
Indianapolis	16.9	17 9	4.0	12.1
South Bend	17.4	18.4	4.0	12.2
Fargo, N. D.	18.9	19.9	3.0	13.9
Huron, S. D.	17.5	17.5	4.0	12.7
Sioux Falls	17.8	14.9	4.0	12.4
K. C., Mo.	14 9	15 9	3.0	9.6
Springfield*	15.9	16.9	3.0	10.5
St. Louis*	12.9	13.9	2.5	10.3
St. Joseph	15.5	11.9	2 0	10 1
Wichita, Kans.	14.8	13.8	3.0	9.8
Bartlesville, Ok.	15.5	18.5	4.0	9.5

*State tax 2 cents; remainder city tax.

†Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline; 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Denver, Colo.	16.0	19.0	4.0	13.5
Pueblo	17.0	20.0	4.0	13.5
Grand Junction	20.5	23.5	4 0	17.0
Casper, Wyo.	17.0	20.0	4.0	12.0
Cheyenne	18.0	21.0	4.0	13.5
Butte, Mont.	19.0	22.0	5.0	18.0
Billings	20.0	23.0	5.0	16 5
Great Falls	20.0	23.0	5.0	18.0
Helena	22.5	25.5	5.0	18.0
Salt Lake, Utah	20.0	23.0	3 5	17.0
Albu'que, N. M.	16.0	18.0	5.0	15 0
Boise, Idaho	23.5	26.5	5.0	19.0
Twin Falls	23.5	27.5	5.0	19.0

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	14.0	17.0	4.0	12.0
Fort Worth	14.0	17.0	4.0	11.0
Houston	15.0	19.0	4.0	11.0
San Antonio	13.0	17.0	4.0	11.0
El Paso	16.0	20.0	4.0	13.0
Texarkana	17.0	17.0	4.0	12.0
Muskogee*	15.0	18.0	4.0	9.0
Okla. City*	14.0	17.0	4.0	10.0
Tulsa	14.0	18.0	4.0	10.0
Ft. Smith, Ark.	14.5	15 5	5.0	12.0
Little Rock	15.0	16.0	5.0	12.0

*Gasoline tank wagon price to dealers 1 cent under posted tank wagon.

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Omaha	17.25	18.25	4.0	11.25
McCook	18.75	20.75	4.0	12.75
Norfolk	17.25	17.25	4.0	11.75
N. Platte	18.75	20.75	4.0	12.50
Scott's Bluff	17.00	17.00	4.0	12.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Ohio points*	18.0	19.0	4.0	†15.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	13.5	14.5	5.0	12.3
Baton Rouge	14.5	15.5	4.0	13.0
Alexandria†	15 5	16.5	5.0	13.0
Lafayette*	15.5	16.5	5.0	13.0
Lake Charles*	15.5	16.5	5.0	13.0
Shreveport	14.5	15.5	4.0	13.0
Knoxv'le, Tenn.	15.0	16.0	5.0	15.0
Memphis	13.0	14.0	5 0	12.5
Chattanooga	17.0	18.0	5.0	13.0
Nashville	14.0	15.0	5.0	15.0
Bristol	18.0	19.0	5.0	14.0
Lt. Rock, Ark.	15.0	16.0	5.0	12.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

One cent discount allowed off station price on all cash purchases. All other station discounts withdrawn October 2, 1930.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	14.5	16.5	2.0	11.5
Newark	13.5	15.5	2.0	10.5
Annapolis, Md.	16.0	18.0	4.0	11 0
Baltimore	15.2	17.2	4.0	9.5
Cumberland	17.0	19.0	4.0	12.0
Wash'gton, D.C.	13.7	15.7	2.0	10.7
Danville, Va.	17.8	19.8	5 0	11.8
Norfolk	16.3	18.3	5.0	10.0
Petersburg	17.3	19.3	5.0	11.3
Roanoke	18.0	19.0	5.0	12.0
Richmond	16 7	18.7	5.0	10.7
Charles'n, W.Va.	16.5	18.5	4.0	11.5
Keyser	17.1	19.1	4.0	12.0
Parkersburg	15.2	17.2	4.0	10 2
Wheeling	16.4	18.4	4.0	11.4
Charlotte, N. C.	18.3	20.3	5.0	12.3
Hickory	18.6	20.6	5.0	12.6
Mt. Airy	18.5	20.5	5.0	12.5
Salisbury	18.5	20.5	5.0	12.5
Charleston, S.C.	17.3	19.3	6.0	10.3
Columbia	19.2	21.3	6 0	12.3

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	21.0	23.0	6.0	14.5
Augusta	22.0	24.0	6.0	15.5
Macon	22.0	24.0	6.0	13.0
Savannah	20.0	22.0	6.0	14.0
Birm'ham, Ala.	18.0	20.0	5.0	14.5
Mobile	19.0	21.0	4.0	11.5
Montgomery	20.0	22.0	4.0	15.0
Clarks'le, Miss.	19.0	21.0	5.0	12.5
Jackson	15.0	17.0	5.0	13.0
Natchez	19.0	21.0	5.0	13.0
Gulfport	20.0	20.0	5.0	13.0
Vicksburg	19.0	21.0	5.0	13.0
Jack'ville, Fla.	19.0	19.0	6.0	14.0
Miami	21.0	23 0	6.0	14.0
Pensacola	20.0	21.0	6.0	13.5
Tampa	20 0	20.0	5.0	13.0
Lexington, Ky.	19.0	20.0	5.0	14.5
Covington	19.0	21.0	5.0	14.5
Louisville	18.0	20.0	5.0	13.5
Ashland	18.0	20.0	5.0	15.0
Catlettsburg	18.0	20.0	5.0	15.9

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 3 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	15.6	17.6	2.0	15.6
New York*	14.3	16.3	2.0	14.3
Buffalo	17.8	19 8	2.0	14.8
Rochester	18.0	20.0	2.0	14.0
Syracuse	18.8	20.8	2.0	14.8
Boston, Mass.	14.5	16.5	2.0	13.5
Augusta, Me.	19.8	21.8	4.0	14.8
Manch't'r, N. H.	19.4	21.4	4.0	14.0
Burlington, Vt.	19.6	21.6	4.0	15.8

*Prices in steel barrels.

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	15.0	*20.0	...	12.0
Philadelphia	15.0	*20.0	...	12.9
Scranton	15.0	*20.0	...	12.0
Allentown	15.0	*20.0	...	12.0
Altoona	15.0	*20.0	...	12.0
Erie	15.0	*18.0	...	12.0
Dover, Del.	18.0	20.0	3.0	12.0
Wilmington	18.0	20.0	3.0	12.0
Springf'd, Mass.	17.5	19.5	2 0	10.9
Worcester	17.3	19.3	2.0	10.0
Boston	16.5	18.5	2.0	10.0
Providence, R.I.	13.7	14.7	2.0	10 0
Hartford, Conn.	17.5	19.5	2.0	12.5
New Haven	17.6	19.6	2.0	12.6

*Includes tax of 3 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline Wh'la'le Price	Gasoline Retail Price	Gasoline Incl'ds tax of	Kero. tank wagon
Fresno	23.0	21.0	3.0	17.0
San Francisco	23.0	21.0	3.0	15.5
Los Angeles	22.5	20.5	3.0	15.5
Reno, Nev.	28.0	26 0	4.0	19.9
Portland, Ore.	24.5	22.5	4.0	16.5
Seattle, Wash.	23.5	21.5	3.0	16.5
Tacoma	23.5	21.5	3.0	16.5
Spokane	27.5	25.0	3.0	20.5
Phoenix, Ariz.	19.5	22.5	4.0	20 9

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.9
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	10.0
V. M. & P. naphtha	16.7	12.0
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

TANK WAGON CHANGES

Standard Oil Co. of Louisiana made a general revision of prices, raising both tank wagon and service station prices 1 cent on October 18 in Alexandria, Baton Rouge, Lafayette, Lake Charles and Shreveport, La., and in Bristol, Tenn. On the same date it advanced the prices in Little Rock, Ark., one-half cent. On October 22 the company reduced the tank wagon and station prices 1 cent in Chattanooga, Knoxville, Memphis and Nashville, Tenn.

Standard Oil Co. of Indiana on October 22 made the following reductions in service station prices: Decatur, Ill., 17 cents to 16.4; Sioux City, Ia., 15.9 to 14.9; Duluth, Minn., 18.5 to 16.4; Madison, Wis., 16.3 to 15.3; Sioux Falls, S. D., 18.1 to 14.9.

Continental Oil Co. reduced tank wagon and service station prices 1 cent in Helena, Mont., on October 1, making them 22½ and 25½ cents. It reduced the service station price in Albuquerque on September 12 to 18 cents.

Standard Oil Co. of New Jersey October 17 reduced the service station price 1 cent in Roanoke, Va., to 19 cents.

Standard Oil Co. of Kentucky reduced the tank wagon and service station prices in Gulfport, Miss., October 19 from 20.5 and 22.5 cents to 20 cents in each case. On October 16 it reduced the tank wagon price in Jackson, Miss., from 17 cents to 15.

Standard Oil Co. of California advanced tank wagon and service station prices in Phoenix, Ariz., on October 24 from 17 and 20 cents to 19.5 and 22.5 cents.

CANADIAN WESTERN EXTENSION

CHATHAM, Ontario, Oct. 25.—Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary is completing improvements and extensions for the 1930 season involving an outlay of close to $500,000. Some 35 miles of new lines have been laid in Calgary and Lethbridge and other communities have been given improved service. Foremost, Burdett and Cayley are being supplied with gas this season for the first time, and the Taber system has been extended to the residential district. Work has been done on the Black Diamond service, recently taken over from local owners.

CRUDE OIL PRICES

(Continued from Page 135)

fining Co., and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Oct. 28, 1930)*	$ .90
Luling (Oct. 28)	.75
Mirando (Oct. 28, 1930)*	.75
Pettus (Oct. 28, 1930)*	1.10
Salt Flat (Oct. 28, 1930)*	.90
Thrall‡	...
Lytton Springs (Lockhart). See gravity table	
Somerset (April 10, 1930):	
Below 33 gravity	$1.16
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.19
35 to 35.9 gravity	1.21
36 to 36.9 gravity	1.23
37 to 37.9 gravity	1.25
38 gravity and above	1.27

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. §Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective October 22, 1930)

Seep Purchasing Agency withdrew from Bradford and Allegany Fields as a purchaser on May 16.

Penna Grade Oil in National Transit Lines (Pennsylvania)	$2.15
Penna Grade Oil in Southwest Pennsy.vania Lines (Pennsylvania)	2.10
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.00
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930)	1.75
Corning Grade Oil in Buckeye Pipe Line Co.'s Lines (Oct. 28, 1930)	1.30
Somerset Oil in Eureka Pipe Line Lines (Kentucky) (August 1, 1930)	1.14
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky)	1.10
Wayne District Oil in Cumberland Pipe Lines	1.17

Tide Water Pipe Co.

Bradford district (Oct. 22, 1930)	$2.40
Allegany district (Oct. 22)	2.40

Pure Oil Co.

Cabin Creek, W. Va. (Oct. 22)	2.25
Kelly Creek, W. Va. (Oct. 22)	2.25
Bradford Hollow, W. Va. (Oct. 22)	2.25

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective Oct. 28, 1930)

Lima	$1.05
Wooster	1.19
Illinois	1.30
Indiana	.88
Princeton	1.30
Plymouth	.88
Western Kentucky	1.15
Midland, Mich.*	1.19
Dundee, Mich. (Oct. 28)	.....Same as Mid-Continent gravity scale
Upper and Lower Traverse Sands, Mich. (Oct. 28)	.....Same as Mid-Continent gravity scale
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.50
Oil City, Ky. (July 25, 1930)§	1.35
Oil Springs (Canada) (Oct. 28)¶	1.57
Petrolia (Canada) (Oct. 28)¶	1.59

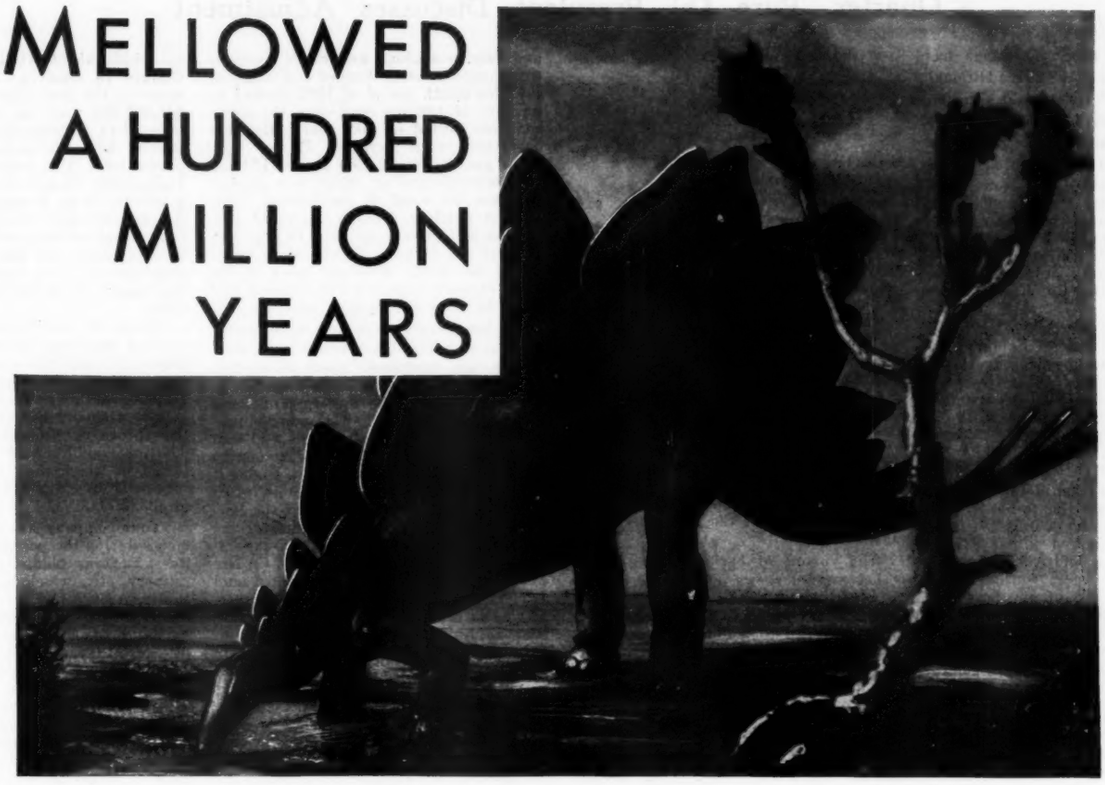
*Posted by Pure Oil Co. †Posted by Sun Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment. Local refiners posted Mid-Continent prices on April 11.

MEXICAN CRUDE

Panuco*	$0.55

*F.o.b. ship, based on September transactions.

MELLOWED A HUNDRED MILLION YEARS



While the Stegosaurus drank from PENNSYLVANIA'S springs

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If that's a strong statement, listen to this: Mobiline is made 100% from Bradford-Allegany crude oil—the highest priced of all Pennsylvania grade crude oils—the crude that was formed in the Devonian Age a hundred million years ago. At the big, new Sinclair refinery at Wellsville, N. Y., this crude is de-waxed at as low as 60° F. below zero and stripped almost entirely of its carbon-forming compounds. Drop for drop Mobiline runs more uniform than other Pennsylvania oils and holds its rich, green color longer. It is the ideal oil for winter and summer—recommend it according to the Sinclair Law of Lubrication. Try a crankcaseful in your own car and be convinced.

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Made in the newest, largest single refinery using PENNSYLVANIA grade crude exclusively.

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35¢ *per quart*

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Additional Phillips Shares Admitted

Report to Stockholders Issued With Statement for Third Quarter. Pure Oil President Discusses Adjustment

The New York Stock Exchange has admitted to trading 1,168,284 additional shares of Phillips Petroleum Co. common stock, of which 1,057,543 shares will be issued in full payment for the properties of the Independent Oil & Gas Co., 74,064 shares will be issued on conversion of the 6 per cent debentures and 33,299 shares in exercise of stock purchase warrants of Independent Oil & Gas Co. Of the new listing, 3,378 shares will be used in payment for certain properties taken over from Gilliland Oil Co. of New Mexico.

Holders of stock purchase warrants have rights, which expire January 15, 1931, to purchase Phillips stock at $45.71 per share. Independent Oil & Gas debentures, of which $3,193,500 is outstanding, are convertible into Phillips stock on the basis of $43.12 per share to March 15, 1931, the price increasing annually each year thereafter to March 15, 1939.

The Phillips acquisition of Independent was based on the approximate book value of the two companies as of July 31, last. These book values figured out at $37.45 per share for Phillips and $29.37 for Independent, the deal being consummated on the equivalent basis of 76 shares of Phillips for each 100 shares of Independent.

Earnings of the Phillips Petroleum Co. for the third quarter and the nine-month period of 1930 were as follows:

	Third quarter	Nine months
Gross income	$17,211,394.03	$43,793,648.11
Expenses and cost of products sold	11,048,257.66	27,429,986.14
Net income (before depreciation, depletion, retirements and other amortization)	6,163,136.37	16,363,661.97
Depreciation, depletion, retirements and other amortization	3,136,767.18	8,698,893.59
Net profit	$3,026,369.19	$7,664,768.38
Earnings per share on average outstanding shares	$0.90	$2.66

No figures of any character of Independent Oil & Gas Co. are included in the above earnings, as these properties will not actually be taken over until in the last quarter of the year. The report to the stockholders says:

"The decline in our stock and in prices of petroleum products has prompted many inquiries from stockholders as to our dividends. The nine months' earnings per share on the average outstanding shares have amounted to $2.60 and, in addition, $2.95 per share has been charged to reserves. In view of the foregoing statement it is the unanimous opinion of the board of directors that the usual dividend shall be declared at the November meeting.

"The volume of business done in the period covered shows a large increase in all departments, except the crude oil division, where production has been necessarily curtailed to a minimum under orders of state commissions which are attempting to balance supply and demand. The demand permitting, your company could now produce crude oil and products in amounts far in excess of any other period of its history. A generally lower price structure for all petroleum products has prevented the increase in income which might have been expected in proportion with the increased volume of business done, and the accompanying increase in expenses and cost of products sold.

"In the year ending September 30 bulk and service stations and resale accounts were approximately doubled and sales for the nine-month period of 1930 showed an increase of 142 per cent over the corresponding period of last year. Refinery operations were increased 37 per cent, while gasoline production gained 134 per cent notwithstanding which our production was not equal to the demand. The natural gasoline division increased production and sales more than 16 per cent. Natural gas division showed an increase of 5.7 per cent. Philfuels sales in the retail division increased 219 per cent and other divisions are making progress.

"It has become more and more apparent that stability of income and maximum profits are dependent upon diversified, well-balanced activities in all branches of the industry and the low cost of large volume business. The company's program has been directed to this end and major investments of the past few months have been in facilities which will enable it to manufacture and distribute its products to the ultimate consumer at the lowest possible price. Arrangements for the acquisition of all of the assets of the Independent Oil & Gas Co. for stock in our company have also been completed and delivery will be made in the near future. The basis of this trade was approximate book values of the two companies as of July 31, 1930. These book values were $37.45 per share for Phillips and $29.37 for Independent, and in addition a very conservative appraisal showed much higher relative values of the shares of both companies. The earnings of Independent for the past several years have been approximately the same as Phillips on the basis of the trade.

"The combined assets of the two companies as of July 31, 1930, which was the date of the agreement, represented a cash investment of approximately $316,000,000 of which about $103,000,000 has been charged to reserves. Cash and current assets at the same time amounted to over $48,000,000 with net working capital of more than $40,000,000, which is in excess of the combined funded debt of both companies. The physical properties of Independent fit into our situation in such a manner as to eliminate important capital expenditures which otherwise would have been necessary and are so located as to supplement our own without duplication, thus effecting capital and operating economies of several million dollars a year.

"Upon the final transfer of the Independent properties to us your company's assets through this and other acquisitions will have been increased more than $62,000,000 this year. This large increase in assets should not only serve to stabilize future earnings, but also puts this additional equity back of the company's bonds, of which there are now outstanding in the hands of the public an amount of $33,627,000.

"Your company has made large investments during the past few months in pipe lines, gasoline plants, gas lines, and the refinery, etc., which have had no opportunity to show any returns on the investsome; some of the larger investments will not begin to show a return until the completion of the projects in 1931. Capital expenditures for the year not yet having had an opportunity to show much earnings, and with the prospect of continued low prices in the last quarter of this year, it is anticipated that the earnings for the entire year on the average amount of stock outstanding including stock paid for the Independent properties will be less than the earnings per share for 1929.

"The petroleum industry, in common with many others, is contending with the

(Continued on Page 142)

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended October 22 Sales	Week ended October 22 High	Week ended October 22 Low	Week ended October 22 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
⅜	⅛	1,000	⅛	⅛	⅛	American Consolidated Oilfields		$11,018,000	$5	....	.....	2 7/8	.55	1½	.53	72c	⅛
4½	1	300	1⅛	1⅛	1⅛	American Maracaibo	(sh)	700,000	N.P.	....	.....	7½	2¾	9½	3⅛	8⅝	1⅛
1⅜	1	300	1⅛	1⅛	1⅛	Argo Oil	(sh)	683,971	$10	....	.....	2¾	1	4½	2¼	5	1½
21	17	100	17	17	17	British American		1,311,321	N.P.	25cQ*	7- 2-30	40	20½	55	32¾	62	7⅞
2¾	¾	200	1¼	1¼	1¼	Caribbean Syndicate		$131,250	25c	....	.....	28¼	15½	4½	3⅞	4⅞	1
44¼	22¼	26,900	24	23½	23⅝	Cities Service	(sh)	24,290,359	N.P.	30cA†	9- 1-30	58¾	40½	90⅞	54	68⅛	20
93⅞	88	400	90⅞	90⅝	90⅞	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	9- 1-30	95⅜	87	103½	94½	98¾	84
¾	⅛	200	3/16	3/16	3/16	Colombia Syndicate		$2,000,000	$1	....	.....	3⅞	1⅛	3¼	.76	2	½
5⅞	2⅞	400	2⅞	2⅞	2⅞	Consolidated Royal		$5,000,000	$10	12½cQ	7-25-30	9¾	6⅜	8⅞	6¼	11⅛	2½
7⅝	3⅞	400	4	3⅞	4	Creole Petroleum	(sh)	5,977,873	N.P.	....	.....	14⅞	9½	17½	9½	11¾	5⅝
1	¼	900	⅜	⅜	⅜	Crown Central	(sh)	587,000	N.P.	....	.....	3	.50	3¼	.76	2½	¼
21⅞	6⅛	400	7½	7½	7½	Darby Petroleum (new)		1,019,392	N.P.	50cQ	7-15-30	12	4	33½	3¼	26	6½
11	4½	600	5	5	5	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2½	74	2¼	1	11	2
60	30	25	42	42	42	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	16¾	4	21⅛	7½	44	20¾
168⅞	80⅜	3,900	82⅛	80⅜	80½	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	7- 1-30	118	86¼	165	101⅛	209	115
1¾	½	300	½	½	½	Intercontinental Petroleum		$5,682,000	$5	....	.....	2½	.80	3⅜	1	2⅞	⅜
3	1⅛	100	1½	1⅛	1⅛	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	2¼	1⅛	3	1¼	3⅝	1¼
4¾	1	1,000	1⅛	1⅛	1⅛	Leonard Oil & Development		$50,000,000	$25	....	.....	10⅞	5⅛	9⅜	5⅛	6⅛	1
29	9½	500	10¾	10¼	10¼	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	7-28-30	27½	20	43⅞	20	38⅞	18
55⅞	24	7,200	26⅞	24	24	Lone Star Gas	(sh)	5,000,000	N.P.	25cQ	6-30-30	59⅜	37	69⅛	48½	67⅞	28
½	⅛	400	3/16	3/16	3/16	Magdalena Syndicate	(sh)	850,000	$1	....	.....	2⅞	.80	1⅞	.50	1¼	¼
16	6	100	6	6	6	Margay Oils		160,000	N.P.	....	7-10-30	52	12	48½	32	38½	14
7½	2	400	3	3	3	Mexico-Ohio Oil		.....	...	....	.....	12⅛	5	8	2¾	6⅜	2½
¾	¾	100	7/16	7/16	7/16	Mountain & Gulf		$4,000,000	$1	40cQ	7-15-30	1½	1	1¾	.76	1½	¼
12⅛	6½	400	6½	6½	6½	Mountain Producers		$1,682,182	$10	40cQ	7- 1-30	29¼	22¾	28⅞	19½	22⅞	7
3½	2	100	2	2	2	New Bradford Oil		$1,095,291	$5	12½cQ	7-15-30	5⅞	4⅝	5⅝	4¼	5	2½
7¼	2	900	2⅜	2	2	New Mexico and Arizona		$1,000,000	$1	....	.....	16	9¼	11⅞	7⅛	9⅜	2¼
11¼	4	100	4	4	4	North Central Texas	(sh)	400,000	N.P.	15cQ	9- 2-30	12¾	9½	14¼	8½	18½	6⅛
2½	¼	1,500	3/16	¼	¼	Pandem	(sh)	489,875	N.P.	....	.....	9¾	3¼	6	2⅛	3½	½
4⅝	1⅝	100	2	2	2	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	12⅛	7	15⅝	8½	10½	1⅞
..	..	No sales.				Pennok Oil		150,000	N.P.	....	.....	12½	5⅛	7¾	4⅞	7¾	4⅜
10½	6½	300	7	6½	6½	Red Bank Oil	(sh)	250,000	N.P.	....	.....	24⅜	7	18	4⅞	16	9⅝
5⅜	2	200	2½	2⅛	2½	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	15½	3½	12⅞	4⅛	8½	1⅛
8⅝	2½	1,000	2⅝	2⅝	2⅝	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	7	4½	12	4⅛	11	3
2½	1⅜	200	1¾	1⅝	1⅝	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	7- 1-30	8	5¼	7¼	5½	5⅞	1⅞
15¼	7	400	7¼	7	7	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	8- 1-30	35½	27¼	35	23⅛	25⅞	9
1	½	100	½	½	½	Savoy Oil		$750,000	$5	....	.....	7	1¼	3½	1	2½	3/16
4½	1⅝	700	1¾	1⅝	1⅝	Venezuelan Petroleum	(sh)	755,090	$5	5cQ	2-15-30	7⅜	4¼	9⅛	4¾	6½	1¾
5	2	500	3	3	3	Woodley Petroleum		$500,000	$1	15cQ	3-31-29	7	4¾	8¼	4⅞	9½	2
2½	½	200	½	½	½	Y Oil & Gas		100,000	N.P.	....	.....	6	1¾	8⅜	2⅛	2⅞	¼

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent. x Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended October 22 Sales	Week ended October 22 High	Week ended October 22 Low	Week ended October 22 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
18½	12¼	400	18½	18⅜	18½	Anglo-American Oil (vot. C.O.D.)		£4,192,635	£1	.36⅛	.....	21⅜	17⅜	22⅜	14⅜	17	11
1	⅜	400	½	⅜	⅜	Atlantic Lobos		.....	...	....	.....	..	..	..	..	..	..
25	14	100	16	16	16	Borne Scrymser		$1,000,000	$25	$1SA	10-15-29	59	50	56½	44½	46½	25
59	51	200	51	51	51	Buckeye Pipe Line		$10,000,000	$50	$1Q	12-14-29	60	45	76	53	74½	55
184⅞	119¾	100	119¾	119¾	119¾	Chesebrough Mfg.		$3,000,000	$25	$1Q*	7-30-30	126	76½	161	117	210	130
65¾	29¼	400	29¼	29¼	29¼	Cumberland Pipe Line		$1,500,000	$50	$1Q	9-15-30	137	89	114	67	75¾	40
54¾	34	400	35⅛	34	35	Eureka Pipe Line		$5,000,000	$100	$1Q	8- 1-30	68½	47	88	64⅛	70½	42
7	2½	100	3½	3½	3½	Galena Signal Oil		$16,000,000	$100	....	.....	13½	3½	13	4¼	6½	3
119	72¾	2,900	73⅛	72¾	72¾	Humble Oil & Refining		$74,103,300	$25	50cQ	7- 1-30	68½	54	114¾	59¼	128	74⅛
320	303	100	320	315	315	Illinois Pipe Line		$20,000,000	$100	$10SA	9-15-30	182	123¾	290½	176½	340½	260
30	15⅛	5,400	16¼	16	16⅛	Imperial Oil of Canada (new)	(sh)	26,421,768	N.P.	12½cQ	9- 2-30	64¾	37¾	104	56¾	41	22
41	27	200	27⅛	27⅛	27⅛	Indiana Pipe Line (new)		$3,000,000	$10	50cQ‡	8-15-30	94½	61	91⅞	74⅜	41⅞	26
24	13¾	600	14⅛	13¾	14	International Petroleum (new)	(sh)	14,247,088	N.P.	12½cQ	6-16-30	29	28¼	55	35	30⅜	15
22⅜	13¾	300	14⅝	14⅝	14⅝	National Transit		$6,362,500	$12.50	25cQ‡	9-15-30	24	13½	32⅜	19⅜	25⅛	10⅛
21⅜	10⅛	100	12⅞	11⅛	11¾	New York Transit		$1,000,000	$10	40cQ†	4-15-30	44½	31¼	75	38½	17½	10
54	30⅛	50	31	51	31	Northern Pipe Line		$2,000,000	$50	....	7- 1-30	100	70	69	56½	63	41
108	103	700	105¼	105¼	105¼	Ohio Oil Co.		$60,000,000	$100	$6	.....	..	..	..	..	105	103¾
37	17	100	18½	18½	18½	Penn Mex Fuel		$10,000,000	$25	50cQ	8-22-30	39	12	84	28	44½	20
33	9⅛	400	9½	9½	9½	Solar Refining		$4,000,000	$25	$1.25SA	6-30-30	..	..	..	..	50	29
20⅞	9	100	9	9	9	Southern Pipe Line		$1,000,000	$10	5cQ	6- 2-30	27¼	15½	19	15	22½	13
45⅞	25	200	26⅜	26¼	26¼	South Penn Oil		$30,000,000	$25	50cQ	6-30-30	41½	35	71⅞	36¾	60¼	35⅛
64	40	50	40	40	40	Southwest Pennsylvania Pipe Lines		$1,750,000	$50	$1Q	1-10-29	83	55½	102	70	70	60
59⅞	40⅛	18,800	40¾	40⅛	40⅜	Standard Oil of Indiana		$348,175,069	$25	62½cQ‡	9-15-30	81½	64⅜	95⅞	70⅞	63	45
40½	24	1,000	25⅜	24¾	24¾	Standard Oil of Kentucky		$25,654,516	$10	40cQ	6-30-30	130	111½	179¾	122¼	467⅜	29
48⅞	42⅛	100	42⅛	42⅛	42⅛	Standard Oil of Nebraska		$4,649,225	$25	62½cQ‡	9-20-30	49½	40	54⅞	39⅞	50¼	40
108½	52⅞	150	54¾	53⅛	53⅛	Standard Oil of Ohio		$14,000,000	$25	62½cQ	7- 1-30	87½	72	134	71	129	60
10	4	100	4	4	4	Swan-Finch Co.		$861,466	$25	.43¾cQ	9- 3-30	21	14½	23½	16	18	10
97⅞	59⅛	9,800	60⅜	59½	59⅞	Vacuum Oil Co.		$126,180,350	$25	$1Q	9-20-30	..	..	111	72	133¾	75

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. x Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended October 22 Sales	Week ended October 22 High	Week ended October 22 Low	Week ended October 22 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
31½	18	1,300	23	21¾	23	Amerada Corp.	(sh)	922,075	N.P.	50cQ	7-31-30	37⅝	27⅝	43⅞	27⅛	42⅝	17½
37	8¼	2,300	10¼	8¼	9	American Republics Corp.	(sh)	209,180	N.P.	....	.....	82½	35⅛	85	51⅛	64¾	12½
51	32½	10	39½	39½	39½	Associated Oil		$57,260,300	$25	50cQ	9-30-30	50¼	35	53⅜	37½	47¼	34½
61¾	22	9,300	22½	22	22	Atlantic Refining		$66,763,775	$25	25cQ†	9-15-30	131⅜	104	66⅜	50	77⅞	30
34	14⅛	14,100	15⅜	14⅛	15	Barnsdall Corp. A		$56,546,600	$25	50cQ	8- 6-30	35½	20¾	54	20	49⅛	20
30½	12	13,300	12⅞	12	12¼	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	..	..	47⅛	18
71⅛	29½	1,700	30¼	30	30	General Asphalt	(sh)	413,333	N.P.	$1Q	9-15-12	96¾	65	94⅞	68	94¾	42¼
116⅞	44⅛	6,800	47½	44⅛	45¾	Houston Oil		$24,968,600	$100	....	.....	175¾	60⅛	167	79	109	20
32	15⅛	4,100	15½	15¼	15⅜	Independent Oil & Gas	(sh)	1,362,295	N.P.	50cQ	7-31-30	32¾	17⅝	38⅜	21¾	39⅜	17¾
28⅜	5¼	11,100	6⅛	5¼	5⅞	Indian Refining		$12,565,070	$10	....	.....	12⅛	7⅝	39⅝	9	53	13⅛
29½	21¼	1,900	27⅛	27⅛	27⅛	Lago Oil & Transport	(sh)	3,992,122	N.P.	....	5- 2-27	37¾	20½	39⅛	27⅜	38⅜	16½
12	4⅝	900	6	5⅝	5	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	18⅛	10	19¾	9⅜	18	7
10⅜	2⅛	200	3	3	3	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	22¾	12	25½	12½	18½	5⅛
37	13⅝	10,000	15	13⅝	14⅛	Mexican Seaboard	(sh)	1,244,383	N.P.	....	10- 1-24	9¼	3	72	4⅝	59⅜	8¼
33	17½	4,500	17¾	17½	17¾	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	7-15-30	39⅜	25½	44½	25⅛	39⅞	22⅛
..	..	No sales.				Middle States ctfs.		$23,736,130	$10	....	7- 1-23	3¾	1⅝	7⅜	2⅜	5⅛	¾
33	21⅛	14,900	22	21⅛	21½	Ohio Oil		6,648,052	N.P.	50cQ	9-15-30	67⅞	52	84	58½	79⅞	64¼
64¼	46¼	200	46⅜	46¼	46¼	Pan American P. & T.		$50,084,760	$50	....	12-20-27	65⅞	40⅛	50⅞	38¼	69	40½
67½	46¼	1,000	46¾	46¼	46¾	Pan American P. & T. "B"		$121,110,650	$50	....	12-20-27	66⅜	40¼	58⅞	37¾	69¼	40½
..	..	No sales.				Pan American Western "B"		400,000	N.P.	....	1-30-27	37⅞	16¾	28⅜	15½	18½	13⅜
12¾	3	500	3½	3	3	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	18⅞	8	21¾	11½	15¼	3
80	47½	100	70	70	70	Panhandle P. & R. pfd.		$2,564,400	$100	....	7- 2-23	83	54	108	70	76	47½
44¾	20⅛	15,100	21¼	20⅛	21¼	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	6-30-30	60¼	36¼	53⅞	35¼	47	24¼
2½	¾	200	⅞	⅞	⅞	Pierce Oil Corp.		$29,622,831	$25	....	.....	1⅛	½	5¼	½	3⅜	1
7⅛	2¼	2,400	3	2¾	2¾	Pierce Petroleum	(sh)	2,500,000	N.P.	....	.....	5½	2½	7	3½	5⅞	½
54	22	2,400	24⅛	22½	22½	Prairie Oil & Gas		$60,848,000	$25	50cQ*	6-30-30	55½	45⅝	68	46	65⅝	40½
60	27⅛	2,100	28⅝	27⅛	27¾	Prairie Pipe Line		$101,250,000	$25	75cQ†	6-30-30	190	130¾	280	172	65	45
11⅞	4	500	4⅛	4	4⅛	Producers & Refiners		$37,438,950	$50	....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
40	25½	200	25½	25½	25½	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	50	36⅞	49⅝	41	46¾	25½
27¼	10¾	25,100	12¼	10¾	12	Pure Oil		$75,959,250	$25	37½cQ	9- 1-30	33½	25	31⅝	19	30¾	20
8¾	6⅛	4,200	6¾	6⅛	6½	Richfield Oil (new)		$52,410,875	N.P.	....	9- 1-30	28⅝	25⅜	56	23	49⅝	20
25¾	7⅝	7,000	8⅝	7⅝	8⅜	Rio Grande Oil	(sh)	1,236,270	N.P.	$2A	7-25-30	..	..	37½	32	42½	15
56½	43	16,600	44⅛	43¼	43½	Royal Dutch, N. Y.	(sh)	611,303	...	$1.875	8-13-30	54½	44¼	64	44⅝	64	43⅛
48⅜	37½	190	38⅜	38⅜	38⅜	Shell Transport & Trading Co.		£23,985,000	£1	$1.45	7- 8-30	48⅝	40½	47⅞	41⅜	51½	40⅝
25½	9⅜	4,700	10⅛	9⅞	10⅛	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	31¾	23⅝	39¼	23¼	31¾	19
37	8	4,600	10	8	10	Simms Petroleum		$8,353,620	$10	40cQ	9-15-30	25⅜	14¼	27¼	18⅛	40⅛	15
32	12¼	27,500	13¾	13	13¼	Sinclair Consolidated	(sh)	5,500,000	N.P.	50cQ	7-15-30	22⅜	15	46¾	17⅜	45	21
112¼	106	200	109¾	109¾	109¾	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	7-15-30	104½	97	110	102½	111	103
49	17⅜	1,800	19	17⅜	18	Skelly Oil		$27,441,250	$25	50cQ	9-15-30	37⅜	24⅛	42⅝	25	40½	28
75	51	8,400	51⅝	51	51⅝	Standard of California	(sh)	12,594,098	N.P.	62½cQ	9-15-30	60¾	50⅜	80	63	81⅞	51½
49	19	300	21	20¾	20¾	Standard of Kansas		$8,000,000	$25	50cQ	9-15-30	20⅞	14⅝	37⅜	15	33⅜	18
84⅞	52	67,200	53¾	52	52¾	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	9-15-30	41⅜	35⅛	59⅜	37¾	83	49
40⅜	20½	18,400	26	25½	26	Standard Oil of New York		$445,223,675	$25	40cQ	9-15-30	34¼	29¾	33¼	28¾	48⅛	31¾
70	50	700	56½	54⅞	55⅛	Sun Oil	(sh)	1,416,869	N.P.	25cQ	9-15-30	34⅞	30	77	31½	68⅜	55
9⅜	1½	1,000	1⅝	1½	1½	Superior Oil Corp.	(sh)	776,979	N.P.	....	12-20-20	..	..	..	..	24	5¼
60½	38⅜	18,700	40	38⅜	39⅜	The Texas Corp.		$246,204,900	$25	75cQ	7- 1-30	58	45	74¾	50	71⅞	50
14½	5½	200	5⅞	5½	5⅝	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½%A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
31	15⅛	200	15⅛	15⅛	15⅛	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	6-30-30	29⅛	19	41½	19⅝	40	14
94⅞	83	400	85	85	85	Tidewater 5% pfd.	(sh)	$19,947,000	$100	$1.25Q	9-15-30	90⅛	85	100⅛	86	97½	85⅛
17¾	9¾	17,500	10⅛	10	10	Tide Water Associated	(sh)	5,560,424	N.P.	30c8	8-15-30	19⅛	15¾	25	14¾	23½	10
89¾	70	900	70¼	70	70¼	Tide Water Associated pfd.		$73,284,500	...	$1.50Q	7- 1-30	..	..	..	..	90⅞	74⅛
50	28⅛	1,800	29¼	28⅛	28⅛	Union Oil of California		$104,342,375	$25	50cQ	8- 9-30	56½	39⅝	58	42⅜	57	42⅛
38½	25	1,100	25¼	25	25	Union Tank Car	(sh)	1,254,048	$100	$1.25Q	1- 2-30	127½	94	128⅛	110	163¾	121⅞
27	7	1,700	7	7	7	Warner-Quinlan	(sh)	632,948	N.P.	50cQ	7- 1-30	34½	24½	44⅞	26	42⅞	15
..	..	No sales.				White Eagle Oil & Refining	(sh)	505,100	N.P.	50cQ	1-20-30	27½	20	38	20⅛	38	25
21	9⅞	400	9⅞	9⅞	9⅞	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	..	..	29¾	12⅞

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. x Ex-dividend.
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been splits in the stock.

OIL PRODUCTS HAVE QUIET WEEK IN EAST

(Continued from Page 129)

once buying again resumes in substantial volume.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended October 18 totaled 1,921,000 bbls., a daily average of 274,429 bbls., compared with 2,182,000 bbls., a daily average of 311,714 bbls. for the previous week and a daily average of 268,000 bbls. for the four weeks ended October 18. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	310,000
Boston	55,000
New York	825,000
Philadelphia	278,000
Others	369,000
Total	1,837,000
Daily average	262,429
At Gulf Coast ports—	
New Orleans and Baton Rouge	84,000
Total	84,000
Daily average	12,000
At all United States ports—	
Total	1,921,000
Daily average	274,429
Daily average four weeks	268,000

Distribution of total imports is as follows:

Crude	1,290,000
Gasoline	315,000
Fuel oil	316,000

Export Market

Continued slackness has characterized the open market for export shipments this week. An inquiry for a 9,000 to 10,000-ton cargo of 64-66 for November-December shipment to France is now in the market, together with another inquiry from France for a 3,500-ton part cargo of 64-66 for December shipment. Aside from these inquiries, the market is quiet.

The export situation at the Gulf is still rather soft, and offerings are reported from several sources at levels under the posted schedule.

Notwithstanding quiet in the open market, however, it is understood that large integrated companies with foreign marketing subsidiaries have been moving gasoline and naphthas in fairly large quantities into export channels during the past few weeks, and this has avoided further accumulation of heavy surplus stocks of export grades.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended October 19 totaled 542,000 bbls., a daily average of 77,428 bbls., compared with 372,000 bbls., a daily average of 53,143 bbls. for the previous week and a daily average of 64,679 bbls. for the four weeks ended October 18. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	78,000
New York	155,000
Philadelphia	231,000
Others	55,000
Total	519,000
Daily average	74,143
At Gulf Coast ports—	
Total	23,000
Daily average	3,285
At Atlantic and Gulf Coast ports—	
Total	542,000
Daily average	77,428
Daily average four weeks	64,679

All of the week's receipts from California consisted of gasoline.

PRODUCTION OF NATURAL GASOLINE MAKES RECORD

(Continued from Page 131)

produced and marketed. This represents a gain of 22 per cent over the 1928 production as compared with an increase of 8 per cent for 1928 over 1927, and with an average annual increase of 10 per cent for the past 10 years. Deliveries of natural gas to Canada and Mexico increased from 160,000,000 cubic feet in 1928 to 242,000,000 cubic feet in 1929, the latter of which, when deducted from the total production, gives 1,917,451,000,000 feet as the total consumption for the year. The quantity of gas treated for the recovery of natural gasoline in 1929 was 1,959,294,000,000 cubic feet, or the equivalent of 102 per cent of the total marketed production. This marks the first time that the quantity of gas treated has exceeded the amount marketed. This was due to the fact that large quantities of gas from the flush fields of California and from wells in the Panhandle were treated for the recovery of natural gasoline, but the residue gas, for the want of a market, was allowed to escape into the air.

The refineries are by far the largest consumers of natural gasoline; in fact, they utilized 93 per cent of the total distribution in 1929. During that year the refiners used 44,080,000 bbls., or 1,851,360,000 gallons, of natural gasoline in blending, in addition to 2,377,000 bbls., or 99,834,000 gallons, turned into pipe lines in California. From the standpoint of quantity, the California district easily ranked first in the utilization of natural gasoline, but was outranked by the Louisiana Gulf Coast in point of per cent of total gasoline output. Almost a fourth of the motor fuel produced in the Louisiana Gulf Coast area is natural gasoline, the result primarily of the operations of one company which blends large quantities of natural gasoline in the manufacture of export gasoline.

At one time it was considered profitable for natural gasoline manufacturers to buy naphtha from refiners and do their own blending. However, the increasing difficulty experienced in obtaining naphtha or other suitable oils for blending at prices sufficiently below the selling price for finished motor fuel has reduced blending at the plants to a low point. For example, during 1929 the total quantity of natural gasoline used in motor blends at natural gasoline plants amounted to 27,569,000 gallons, or the equivalent of only 1 per cent of the production. This decline in blending by manufacturers has tended to make them more and more dependent upon refineries as an outlet for their product.

The 27,569,000 gallons of natural gasoline used in blends in 1929 were mixed with 32,333,000 gallons of naphtha or other oils. This indicates a proportion of slightly more than one to one in favor of naphtha, which ratio showed a decline from 1928.

On January 1, 1930, there were 1,035 natural-gasoline plants in the United States, with a total daily capacity of 10,516,000 gallons. The last similar survey, that of January 1, 1928, showed a total of 1,155 plants of 8,048,000 gallons daily capacity. Thus in two years' time the number of plants has decreased by 120, but the total capacity has increased 2,468,000 gallons, or 31 per cent. This is roughly equivalent to the gain in production over the same period. Over half of the increase in total capacity was registered in California, where the development of flush oil production having a comparatively high gas-oil ratio in such fields as Santa Fe Springs, led to construction of some new plants and material enlargement of others.

Of the total plants, 999 were operating on January 1, 1930, and 36 were shut down. This compares with 1,060 operating and 95 shut down two years ago, which indicates a tendency to dismantle plants as soon as they become obsolete or unprofitable. The total daily capacity of the plants operating on January 1, 1930, amounted to 10,278,000 gallons, or 98 per cent of the total, leaving only 238,000 gallons, or 2 per cent, for the shutdown plants. This contrasts with the refining industry, which usually has 5 per cent of its total capacity idle; the difference is due to the relative ease with which a refiner can secure a crude supply as against the difficulty the natural gasoline manufacturer has in re-establishing his gas connections.

During 1929 the average total daily capacity of the plants was 9,889,000 gallons, while the average daily production amounted to 6,015,000 gallons. This indicates that the plants operated during 1929 at 61 per cent of their capacity.

Although over 60 plants were dismantled in Oklahoma during 1929, the State continued to rank first in total number. California was second in number of plants with 165, and was one of the few states that showed a gain since the 1928 survey. California was the leading state in total daily capacity, with 3,658,000 gallons; Oklahoma was second, with 3,085,000 gallons. The disparity between the average size of plants in various sections of the country was more pronounced than at any time since these surveys were begun. For example, the average size of the plants in Pennsylvania on January 1, 1930, was less than 1,000 gallons daily, but in California it was over 20,000 gallons.

The absorption method of extracting natural gasoline made a further gain in relative importance during 1928 and 1929 at the expense of the compression and charcoal methods. The daily capacity of the plants using the absorption method increased from 5,476,000 gallons on January 1, 1928, to 7,956,000 gallons on January 1, 1930, at which date it comprised 76 per cent of the total. The charcoal method of producing natural gasoline, the most recent development in natural-gasoline manufacturing equipment, declined in favor during 1928 and 1929 when the total number of plants fell from 27 to 23, and the total daily capacity from 214,000 to 186,000 gallons.

WEAKNESS PREVAILS IN PRICES ON GULF COAST

HOUSTON, Tex., Oct. 28.—Although faced with contract material moving out as low as 6⅛ cents based on North Texas quotations, Gulf Coast refiners at the opening of the week still were trying to hold the spot market on motor fuel at 7 cents. Two major refineries are known to have sold off gasoline as low as the 6⅛ cents, which is the price in North Texas, allowing for differentials, but so far as known little material has been moved on the open market under 7 cents. Sellers generally are withdrawing from the market rather than make concessions to meet the contract material.

Coastal pale and red oils continued weak the past week. Although October so far has enjoyed a slightly greater volume of business in some viscosities than September, the market on these lubricating oils is extremely unsettled. A generally pessimistic tone prevails with little indication for any immediate relief. The situation at present hinges largely on the generally weak bright stock market in Pennsylvania and the Mid-Continent. No further reductions were made in posted quotations, but sellers have admitted freely that they are not letting price stand in the way of any possible sales.

Fuel oil Monday and Tuesday possibly was a cent or two weaker than last week. Fuel oil is not being offered in distress quantities, but it is freely available with sellers willing to take as low as 62½ cents for Bunker C in cargo lots. some sources are attempting to hold quotations from 65 to 67½ cents, but plenty can be found under that figure. Considerable material slightly under specifications is available around 60 cents.

The bunkering market, however, continues steady around $1. Apparently there has been no change in gas oils. Deals for several cargoes are pending which promise to remove distress material from the picture and hold the spot market around 3¾ cents for 30-32 gravity zero cold test oils. There is some gas oil available as low as 3½ cents, but this is 26-30 gravity material.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 135)

Column 5—Price change posted by Standard of California September 16.
Column 6—Oil below 14 gravity posted at 45 cents.
Column 8—Posted by General Petroleum Co.
Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.30; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, $1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.

Robert H. Thorne, Founder of Darling Valve, Passes Away

WILLIAMSPORT, Pa., Oct. 27.—Robert H. Thorne, founder and president of the Darling Valve & Manufacturing Co., of this city, died here today. Born in Oil City, Pa., July 6, 1863, Mr. Thorne spent his boyhood in Fairview, Pa., where he attended public school. His first employment was at Pine Station, Pa., as telegraph operator for the Standard Oil Co. He moved to Williamsport in 1885 as secretary to J. C. Russell who was then superintendent of the Williamsport branch of the Standard Oil Co.

Mr. Thorne was one of the prime movers in the organization of the Darling Pump & Manufacturing Co. in 1888 and in 1908, when the business was incorporated, the name was changed to Darling Valve & Manufacturing Co. Mr. Thorne served continuously as its president up to the time of his death.

Mr. Thorne was prominent in Masonry and was a member of the supreme council thirty-third degree. He was prominently identified with civic affairs and was serving his fifth year as president of the Community Welfare Corp. He was a member and trustee of the Central Presbyterian Church and trustee in several Masonic bodies; director of the Lycoming Trust Co. and other business organizations.

On January 15, 1890, Mr. Thorne married Miss Ada J. Weymouth, daughter of Samuel and Emily Weymouth. He is survived by his wife and son and two grandchildren.

STANDARD PIPE DEMAND IS SLIGHTLY HEAVIER

By B. E. V. Luty

PITTSBURGH, Pa., Oct. 27.—Standard pipe demand has continued at the slightly heavier pace that has marked October as compared with September. The extra is referred to as steam pipe demand, a special movement due to preparation for winter. In a general way demand for standard pipe has been light all this year, and lighter in the second half than in the first half. Production of butt-weld furnaces is around one-third of capacity, but demand is more than one-third of full normal as there is an excess of capacity.

Line pipe producers are operating at capacity in most cases, but most of the orders will be completed before the end of November, except for some orders in seamless, including one very large order for gasoline lines.

General demand for steel has been slipping a little from week to week, following a slight improvement around the middle of September. Demand regularly falls off late in the year.

Steel ingot production last week was at a daily rate of about 105,000 tons, or at about 50 per cent of present capacity. A rate of 105,000 tons would be 6 per cent under the September rate as officially reported and 32 to 33 per cent under the average rate in the first half of the year.

Buyers of steel and manufacturers of steel will be particularly keen to cut stocks down to the lowest possible point for January 1 inventories. Then there may easily be quite an improvement, and probably will be. It is a notable fact that in the past no matter whether the old year ended well or poorly the new year showed much steel activity in the first three months. Comparing the first quarter of every year from 1923 to 1930 inclusive, there was relatively little difference, the greater differences being in the other three quarters.

Steel prices are not steady in several lines but are perhaps not more unsteady than a month and more ago. In sheets there really seems to be a steadier market. There was hardly any fourth quarter contracting in sheets, while in bars, shapes and plates there was not as much as was expected.

JOINER POOL, EAST CENTRAL TEXAS, PROMISES TO BE EXTREMELY ACTIVE

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Oct. 27.—The Joiner Pool in Rusk County, opened by the discovery of C. M. Joiner and associates on the Mrs. Daisy Bradford farm in the Juan Ximenes Survey, approximately 7 miles northwest of Henderson, looks as if it was going to develop into an extremely active area, for at the present time there are seven new derricks up on offset and nearby locations, and more locations reported for various tracts surrounding the well.

Two and one-half miles of 4-inch pipe line has been laid from the pool to a point on the M.K.&T. (I.&G.N. Survey) Railroad near Friar, and a loading rack is to be built at that point from which production from the pool will be shipped out to a Louisiana refinery via tank car. It was reported that fuel oil would be hauled to Friar, unloaded at that place and pumped to the Joiner Pool through this new line, for drilling fuel, but as the Joiner well has put several hundred barrels of oil in storage and is furnishing surrounding wells with oil for drilling, it seems hardly probable that fuel oil would be shipped in at this time, although it would be much cheaper fuel. Oil from the Joiner well is being sold at $1.10 per barrel for fuel oil, but 42 gravity oil, which the Joiner well is producing, is not so good for firing boilers, and other fuel is needed.

To Run New Liner

The Joiner well is now being washed preparatory to running a new 4-inch liner which has larger and more perforations than the 5-inch liner which was first run in the hole, and which it is believed has been sanding up and holding back steady production. Pulling the old tubing and liner was started on October 22, but it was slow work, almost looking like a fishing job. During the past week the well produced 780 bbls., averaging a little better than 110 bbls. per day, flowing 244 bbls. on October 21 and only 29 bbls. on October 25, showing how erratic has been the flow. It is generally believed that when a new liner is run the well will come back on production and produce better than 300 bbls. per day.

Van Pool

The Van Joint Account, Van Zandt County, did not yield a single completion this week, the first time in many weeks, but the extension area (Carroll district) saw the completion of two wells by the Shell Petroleum Corp. on its Taylor lease. These were two exceptionally good wells, both flowing better than 100 bbls. per hour through eleven-sixteenths-inch chokes. They were Shell Petroleum Corp.'s Nos. 2 and 3 Taylor.

Work on Humble Line

The Humble Pipe Line Co.'s 10-inch welded line into the Van Field from Monroe Station near Shreveport, La., is to be completed within about 60 days. Two crews are working on the line, one crew out of Longview and the other out of Waskom, Tex. Ditching on the line from Longview to Van started on October 23, and welding has been progressing for the past week. The tank farm of the Humble Oil & Refining Co. will probably be located on a 30-acre lease on the Ruth Starr Blake farm on the northwest side of the Van Field, a reported contract between the fee and lease owners calling for one well to be drilled on every 5 acres within this tract which was set aside for a tank farm. Humble Oil & Refining Co. owns the lease to the Ruth Starr Blake 201.4-acre farm in the John Walling Survey.

Production

Average daily production for the pools in the East Central Texas area for the week ending October 25 follow:

EAST CENTRAL TEXAS	
Boggy Creek	3,080
Cedar Creek	60
Currie	305
Hill County	30
Mexia	4,047
Minerva	545
Nigger Creek	175
Powell	5,292
Richland	165
Thrall	40
Van	28,400
Wortham	665
Rusk County	244
Total East Central Texas	43,048
Week ending October 18	42,199
Increase	849

COMPLETIONS IN EAST CENTRAL TEXAS

Anderson County

Humble Oil & Refining Co.'s No. 1 W. L. Cook, Pecan Gap 2,890-3,145 feet, initial production 40 bbls. first hour, total depth 3,989 feet.

Fannin County

North American Petroleum Co.'s No. 1 M. M. Allen, dry and abandoned, total depth 1,502 feet.

Van Zandt County

E. L. Chapman's No. 1 Charles Wolverton, top Woodbine sand 3,963 feet, show oil 3,985 feet, dry and abandoned. total depth 4,150 feet. W. T. Daniel's No. 1 Mrs. F. Cumbine, temporarily abandoned, total depth 2,275 feet. Dennis Oil Co.'s No. 1 C. W. Morris, temporarily abandoned, total depth 3,071 feet. Shell Petroleum Corp.'s No. 2 Taylor, total depth 2,950 feet, initial production 110 bbls. per hour through eleven-sixteenths-inch choke. Shell Petroleum Corp.'s No. 3 Taylor, total depth 2,932 feet, initial production 100 bbls. per hour through eleven-sixteenths-inch choke.

Wood County

Big Indian Oil Co.'s No. 1 W. P. Foster, top Woodbine sand 4,535 feet, dry and abandoned, total depth 4,907 feet.

EAST CENTRAL TEXAS WILDCATS

Week Ending October 27

CHEROKEE COUNTY

Arkansas Fuel Oil Co.'s No. 1 Deaton, 330 ft. from S line, 300 ft. from E line, from 150-ac. tract in F. Calmen Heirs Sur., 3 miles SE of Jacksonville.....Drlg. 2,653 ft.

DELTA COUNTY

D. S. Hood's No. 1 J. J. Balsen, 185 feet from S and 580 feet W of Balser 40-acre tract in SE cor. T. B. Laddin Sur. .....Moving in material.

FANNIN COUNTY

E. A. Parsons et al's No. 1 Morgan in the English Sur., 3 miles NE of Savoy .....Drlg. 343 ft.; set 6⅝-in. casg.

E. M. Rogers' No. 1 McSwain, 300 ft. S and E of Michael Daly Sur., in Juana Telgando Sur., 1½ miles NE of Lomasco .....Shut down 1,500 ft.

GREGG COUNTY

M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. .....Fishing 1,218 ft.

J. C. Ferrell's No. 1 J. K. Lathrop, 661 feet from N and 1,194 feet from W of 96-acre tract, William Robinson Sur. .....Derrick.

HENDERSON COUNTY

H. E. Ashburn et al's No. 1 T. E. Barry, center of Barry's 59-ac. tract in A. York Sur. .....Drlg. 3,110 ft.

E. L. Chapman's No. 1 Cade, 1,662 ft. from N and 3,354 ft. from W of No. 1, J. B. Dorsey Sur.....Set 10-in. 107 ft.

George Pace et al's No. 1 Mrs. Sarah Anthony, 273 ft. N and 132 ft. W of SE cor. of S. Anthony 632-ac. tract, Jose W. Battvan Sur. .....Drlg. 3,448 ft.

Texas State Oil Co.'s No. 1 Skinner, 150 ft. from E and 150 ft. from S. J. Henshaw Sur. .....Drlg. 2,510 ft.

HUNT COUNTY

Branson et al's No. 1 West, 350 ft. N, 350 ft. W of W 60-ac. tract, Jas. Rooces Sur. .....Shut down 3,250 ft.

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, west of Branson Sur., J. A. McFarland Sur/ .....Derrick blew down.

KAUFMAN COUNTY

Shaw & Alexander's No. 1 Barrow, 2,360 ft. S and 200 ft. W of R. A. Terrell Sur., 4½ miles N of McCoy .....Shut down 3,518 ft.

LAMAR COUNTY

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft. E of 100-ac. tract, L. Roberts Sur. .....Spudded and shut down.

NAVARRO COUNTY

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in Finley Sur. .....Shut down 960 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 J. A. Collins, 313 ft. from NE 150 ft. from SE at right angles to line, A. Viesca Sur..Drlg. 100 ft.

RAINS COUNTY

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory .....Spudded and shut down.

RUSK COUNTY

Clem S. Clark's No. 1 Maude R. McCaffiln, 427 ft. from N, 166 ft. from W of farm, Ellie Blackburn Sur. ....Shut down 3,000 ft.

Arkansas Fuel Oil Co.'s No. 1 J. A. Worrell, 7,361 ft. from N and 5,361 ft. from E. Juan Ximenes Sur. ....Rig up (rotary).

Frank Foster et al's No. 1 Ashby, 200 ft. from N and 250 ft. from E of 75-ac. tract, Juan Ximenes Sur....Shut down 268 ft.

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N and 420 ft. from E of SE cor. of B. Smith Sur. .....Derrick.

C. M. Joiner's No. 3 Bradford, Juan Ximenes Sur. .....Setting new liner; well averaging 110 bbls. per day.

Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartinas Sur. .....Derrick down.

Rosenfield's No. 1 L. A. Pinkston, 150 ft. from N and 262 ft. from W of Pinkston 77-ac. tract, Maria V. Pena Sur. .....Shut down 2,015 ft.

Kimbrough and others' No. 1 Bradford, 150 ft. from N and 150 ft. from E of lot No. 2, Juan Ximenes Sur...Building derrick.

Lauren L. Smith's No. 1 W. H. Worrel, 333 ft. from N and 6,442 ft. from E of Juan Ximenes Sur.....Spudded.

Tex-Lloyd Oil Co.'s No. 1 Camp, 150 ft. from E and 150 ft. S of 5-ac. tract, Juan Ximenes Sur. .....Derrick material (rotary).

L. H. Hunt's No. 1 Bradford, 1,269 ft. W and 1,083 ft. S of SW cor. of J. T. Moore's 100 acres, Juan Ximenes Sur. .....Rig up (rotary).

Bateman et al's No. 1 Lois Della Crim, 3,088 ft. W along N line of survey of NE cor. and 400 ft. S at right angles to N line of survey, E. G. Serien Sur. .....Rig up (rotary).

SMITH COUNTY

Owens & Sloan Oil Co.'s No. 1 Stearns, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur., and 80 ft. E at right angles to W line of J. Waller Sur. .....Drlg. 3,049 ft.

Sun Oil Co.'s No. 1 D. McGehee, 500 ft. W and 250 ft. S of SW cor. of Mrs. Julia Phillips 55-ac. tract, Thomas Quevado Sur. .....Drlg. 1,769 ft.

Thayer & Rogers' No. 1 Willingham, 150 ft. N and W of 14.5-ac. tract, Jacob Hernin Sur. .....Drlg. 1,600 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S, W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona .....Shut down 3,509 ft.

VAN ZANDT COUNTY

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. .....Derrick.

D. H. Byrd's No. 1 W. H. Mawes, 150 ft. from S and 150 ft. from W. J. Piles Sur. .....Drlg. 4,370 ft.; base Pecan Gap 3,441 ft.

Cranfill & Germany's No. 1 Swain, 137 ft. N and 50 ft. from W of excess strip on W side of O. L. and L. L. Swain farm .....Shut down 14 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. .....Temporarily abnd.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler .....Temporarily abnd.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox and A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of W line ....Shut down 200 ft.

Humble Oil & Ref. Co.'s No. 1 A. J. Fowler, 150 ft. from S and E of farm, John Walling Sur. .....Location

Humble Oil & Ref. Co.'s No. 5 R. S. Blake, 150 ft. from N and 150 ft. from E of SW cor. of Mrs. E. E. Carroll farm, John Walling Sur. .....Location

Humble Oil & Ref. Co.'s No. 6 R. S. Blake, 150 ft. from N and 150 ft. from W of SW cor. of Mrs. E. E. Carroll farm, elevation 485 ft.; John Walling Sur. .....Location

Humble Oil & Ref. Co.'s No. 3 Carroll, 150 ft. from S and W of farm, William Daniel Sur., elevation 486 ft. .....T. D. 2,600 ft.; set 6⅝-in. csg.

Pure Oil Co.'s No. 1 R. D. Clark 42 acres, 200 ft. S of N line and 150 ft. E of W line, A. H. Wiley Sur. ....Drlg. 1,875 ft.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van .....Shut down 1,780 ft.

B. P. Hervey's No. 1 Foster & Smith, 150 ft. S and 150 ft. W of 104-ac. tract, Margaret Neal Sur. .....Shut down 4,601 ft.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur. .....Derrick.

Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur..Temp. abd. 2,987 ft.

Imperator Oil Co.'s No. 1 G. J. Luther, in SW cor. G. J. Luther 32-ac. tract .....Plug; T. D. 3,022 ft.

Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. .....Shut down.

Jenkins et al's No. 1 V. T. Davis, SE cor. of 139.8-ac. tract, Nacogdoches County School Land.....Pumped 25 bbls. in 3 days; total depth 3,031 ft.

Kraft & Kelsey's No. 1 Enas in Vacancy strip on E side of Sam Allen and Wylie Enas farms in J. Prado Sur..Shut down 2,715 ft.

Priest et al's No. 1 Blewitt, 175 ft. NW and SW of SE cor. of NW 84-ac. tract, E. Porter Sur. .....Shut down 3,212 ft.

Pure Oil Co.'s No. 1 I. W. Thompson, 1,820 ft. SW of SW line of Nacogdoches County School Land Sur. and 225 ft. from SE line of lease in Mund Gross Sur. .....Cement setting 306 ft.; (rotary).

Pure Oil Co.'s No. 2 O. L. Swain, 200 ft. N of S line and 250 ft. E of W line of lease in John Walling Sur. .....Location.

Pure Oil Co.'s No. 3 W. F. Swain, 250 ft. N of S line and 200 ft. E of W line in John Walling Sur.....Location.

Pure Oil Co.'s No. 2 Mary P. Neills 100-acre tract, 225 ft. E of W line and 658 ft. S of N line, James Rose Sur. .....Location.

Pure Oil Co.'s No. 1 H. C. Gilbert, 62-ac. tract, 250 ft. W of E line and 250 ft. S of N line, Mund Grass Sur. .....Location.

Pure Oil Co.'s No. 1 Sam Allen, 835 ft. E of W line and midway between N and S line of lease, J. Prado Sur. .....Derrick corners in (rotary).

Pure Oil Co.'s No. 1 R. E. Cade, 225 ft. S of N line and 623 ft. E of W line of lease in A. McPhail Sur. .....Cement setting 305 ft.; (rotary).

Pure Oil Co.'s No. 1 A. J. Tunnell, 250 ft. S of N line and 200 ft. W of E line of lease in Mund Gross Sur. .....Drlg. 1,800 ft. (rotary).

Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick standing.
Pure Oil Co.'s No. 1 D. O. Mayo, 225 ft. E of W line and 200 ft. S of N line of 295 acres, J. Prado Sur... Waiting on cement to set 2,785 ft.
Pure Oil Co.'s No. 1 Mertie Elliott 101-ac. tract, 217 ft. E of W line and 672 ft. S of N line of lease, A. H. Wiley Sur. ..... Waiting on cement to set 2,860 ft.
Pure Oil Co.'s No. 2 Mrs. M. F. Shirley 38-ac. tract, 163 ft. E of W line and 93 ft. N of S line of Mrs. M. F. Shirley 38-ac. tract, John Walling Sur..... Cement setting 2,730 ft.
Vitek Oil Co.'s No. 1 Smith, 150 ft. S and 15 ft. from W of L. A. Smith 40-ac. farm in John Walling Sur... Derrick.
The Texas Company's No. 2 R. A. Tunnell 100 acres, 250 ft. S of N line and 200 ft. W of E line, John Walling Sur. ..... Location.
Maud Powell's No. 1 Kilham, 1,360 ft. from NW, along SW line from most S cor. of 52-ac. tract and 425 ft. NE to SW line, Jessie Russell Sur. ..... Drlg. 1,402 ft.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur..... Shut down 997 ft.

ADDITIONAL PHILLIPS SHARES ARE ADMITTED

(Continued from Page 138)

effect of overproduction. It has, however, made great progress toward correcting its position. As compared with a year ago daily production of crude oil is down nearly 500,000 bbls. and daily runs to refinery stills have been reduced more than 425,000 bbls. Stocks of gasoline have declined since April 1 from 55,000,000 to 37,000,000 bbls. The industry is thoroughly awake to its necessities and a continuance of the prevailing spirit of co-operation will restore its economic balance."

Pure Oil

In a statement prepared by Henry M. Dawes, president of the Pure Oil Co., for publication in the next issue of the Pure Oil employes' magazine, he says:

"The supply of oil of the Pure Oil Co. and its ability to deliver it cheaply to its ultimate consumers have fundamentally improved within the last year. Its immediately available resources of crude oil have been multiplied many times within the last year. Within that period it has, by construction of its own pipe line and the acquisition of interests in others, saved for itself most of the transportation profits which in previous years it has paid to the railroads and competing pipe lines. These savings to the company will be several million dollars a year.

"From producing properties in Oklahoma our oil flows north through the new Ajax pipe line to our refineries in Ohio and West Virginia, linking them permanently directly to the fields and to all the great transcontinental pipe lines. From Van our oil flows south to the Gulf of Mexico where, at our own refinery and our own terminal it is put on our own ships to go north to our refineries in the greatest gasoline consumptive area in the world, which we reach with terminals at strategic points from Texas to New York. Around each refinery in the lowest cost transportation areas in great consumptive territories are located our marketing facilities.

"From the fields in Michigan our own pipe line leads to our own vessels on the deep waters of the Great Lakes, and back of it all in the last year is the development of the great Vant Zandt Field, which is under the operation of the Pure Oil Co., and 80 per cent of which it owns. From the refineries in Oklahoma gasoline can be transported to its marketing territories in the North through a pipe line, in which the Pure Oil Co. is a part owner.

"The adjustment that has taken place in the oil business is acute," Mr. Dawes said. "It is dealing in a basic commodity, the use of which has not been curtailed to the same extent as other commodities. The difficulty is obviously one of temporary overproduction. The cost of producing this excess oil, it should be remembered, is not materially greater than would be the cost of producing a lesser amount. There is no industry to which this applies with equal force. These facts, I believe, are generally admitted.

"The period in which we are now living must be considered as one of readjustment, which cannot be of indefinite duration, although of course the earnings of most oil companies will be disappointing this year.

"The company is now one of the very large producers of oil and has adequate refineries and controlled outlets for a large proportion of its output. With exceedingly large reserves of crude, which are immediately available, a transportation system which accomplishes the ultimate economy, and sufficient controlled outlets, it would seem obvious that it should not only maintain its position in the industry but materially improve it.

"It is unfortunate only in the fact that the development expenses which were necessitated in producing this situation were concentrated in a year when both the volume and the price of its products were at a low ebb. The temporary suspension of dividends on the common stock is necessitated by this combination of circumstances. As a self-contained unit in the industry equipped to handle its products economically and efficiently from well to the consumer I believe, however, it is in an unusually good position to weather the temporary adverse conditions and to realize to the utmost the possibilities when conditions in the industry improve."

"Let me suggest to you the contrast in the situation which exists now and that which prevailed a few years ago when our production was only equal to the consumption of our refineries. Today it is sufficient to support these refineries for a period indefinitely long, and the cost of getting this and our other production to the automobiles of our customers has been decreased many million dollars a year through our ownership in the means of transportation."

Warner-Quinlan

Warner-Quinlan Co. and subsidiaries report for the three months ended September 30 net loss of $114,689 after all fixed charges and reserves of $250,886 for depreciation and depletion, as compared with net earnings of $143,196 in the previous quarter and net profit of $745,687 in the third quarter of 1929.

For the first nine months of 1930 the company reports a net loss of $285,060 after fixed charges, inventory write-down and reserves of $750,000 for depreciation and depletion, as contrasted with net profit of $1,822,559 in the first nine months last year.

In a statement accompanying the earnings report, W. W. McFarland, president of the company, pointed out that although a net loss was shown by Warner-Quinlan for the first nine months of this year, working capital position has been improved by a reduction in inventories and a corresponding reduction in bank loans and liabilities.

Sales for the first nine months this year were the largest in the company's history, he said, but earnings failed to reflect this condition due to low prevailing prices for gasoline and asphalt.

"The prospects for continued heavy shipments in gasoline, asphalts and lubricating oils are very satisfactory," he added, "notwithstanding that we are entering normally slack months for asphalt and gasoline. We look for improvement in the price structure in the near future and on the basis of contracts and orders now on hand as well as indications for the future we believe that Warner-Quinlan will be in position to show substantial earnings in 1931."

Houston Oil

Houston Oil Co. of Texas and Houston Pipe Line Co., a wholly owned subsidiary, report for the first nine months of 1930 net profit of $1,307,043, after charges, depreciation, depletion, federal taxes, etc., as compared with $1,252,630 similarly earned in the first three quarters of 1929.

Consolidated net profit for the first nine months this year equaled $3.62 per share on the common stock, against $3.40 per share in the first nine months of 1929. For the September quarter consolidated net profit amounted to 63 cents a share on the common, against $1.35 per share in the third quarter last year. Common share earnings are after dividend requirements on the 6 per cent preferred stock.

White Star-Vacuum

Stockholders of the White Star Refining Co., meeting at Detroit headquarters, have approved the consolidation of the company with Vacuum Oil Co. on the basis of 92½ shares of Vacuum for each 100 shares of White Star and voted to change the corporate name to Trenton Oil Co.

Shareholders voted to issue 100 shares of new Class "B" stock, of $10 par, which will be sold to such persons as the board may determine for carrying out certain contracts and insuring an orderly dissolution of the company.

Mid-Continent Petroleum

Report of Mid-Continent Petroleum Corp. and subsidiaries for quarter ended September 30, 1930, shows net profit of $1,290,387 after surrendered and abandoned leaseholds, depreciation, depletion, federal taxes, etc., equivalent to 69 cents a share on 1,857,912 no-par shares of capital stock, comparing with $1,683,779 or 91 cents a share in preceding quarter.

Net profit for nine months ended September 30 amounted to $3,987,446 after charges, surrendered and abandoned leaseholds, depreciation, depletion, federal taxes, etc., equal to $2.14 a share on 1,857,912 shares.

Hancock Oil

Hancock Oil Co. of California reports for year ended August 31, 1930, net profit of $404,258 after charges and taxes, equal to $1.78 a share (par $25) on 226,504 average number of combined shares of Class A and Class B common stocks oustanding during the year. For the year ended July 31, 1929, net profit amounted to $426,986 which based on the above number of shares is equal to $1.88 a share.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Apr. 9	53.26	July 16	46.42
Apr. 16	52.04	July 23	46.06
Apr. 23	53.39	July 30	44.89
Apr. 30	53.70	Aug. 6	45.24
May 7	50.23	Aug. 13	43.53
May 14	51.67	Aug. 20	43.79
May 21	49.71	Aug. 27	42.83
May 28	50.98	Sept. 3	42.71
June 4	50.94	Sept. 10	42.84
June 11	46.65	Sept. 17	42.43
June 18	41.41	Sept. 24	40.62
June 25	42.37	Oct. 1	37.78
July 2	44.13	Oct. 8	35.85
July 9	44.11	Oct. 15	35.21
		Oct. 22	31.88

REFINERY MERGER APPROVED

DETROIT, Mich., Oct. 27.—At a meeting of the stockholders of the White Star Refining Co. the terms of the proposed merger between that company and the Vacuum Oil Co. were approved. It was voted to change the name to the Trenton Oil Co., the name being taken from the suburb of Detroit in which the refinery is situated.

OLD DUTCH SPENDS $1,300,000

MUSKEGON, Mich., Oct. 27—More than $1,300,000 has been spent in Muskegon since September, 1929, by the Old Dutch Refining Co., operator of the largest independent refinery in Michigan, according to John Borden, president, of Chicago. In addition, the company spent about $450,000 for erection of the plant, which began operations a year ago, and for laying of pipe line gathering systems throughout the Muskegon Field.

Neither Shales Nor Coal Will Be Needed, Gardner's Opinion

By James H. Gardner

During an address at the recent fall banquet of the Mid-Continent Oil and Gas Association, Mr. John M. Lovejoy, president of the Mexican Seaboard Oil Co., stated that in his opinion the oil shale deposits of the United States have "no value whatsoever." He based his opinion on the fact that hydrogenation of coal would take precedence over the manufacture of oil from shale deposits, if such manufacture from solid hydrocarbons ever becomes necessary.

On October 10 the local Tulsa press carried an Associated Press news article given out in Chicago in which Dr. George Otis Smith is quoted as saying in reference to the oil shales that "their present worth for oil extraction purposes is nil," and further pointing out the probability that coal furnishes a better source of oil than the shale beds.

There is a great deal of significance in these utterances other than the bearing they have on the sensational charges of Ralph S. Kelley against the Secretary of the Interior with respect to the passing of ownership of the shale deposits from the Federal domain to the large oil companies. They demonstrate the changing attitude of opinion with respect to the total petroleum resources of the United States. Up until a year or so ago, there were some who believed that the oil shale deposits were a valuable backlog of oil supply that would be needed in the reasonably near future to protect this country against exhaustion. That opinion seems to have passed away now and to have been checked off from further consideration.

In the writer's opinion, we will soon reach the point where we will also check off the coal deposits as having no value whatsoever as a source of petroleum products. The reason for this conclusion is based on the fact that research and discovery are constantly showing a lesser need for oil reserves. Such discovery has already put aside the oil shale and it will likely put aside coal.

The fact of the matter is that the United States has more oil reserves than it will likely ever use. The greatest resource is the resource of discovery and substitution of one source of energy against another. This resource is inexhaustible forever.

VETERAN CALIFORNIA OIL MAN PASSES AWAY

LOS ANGELES, Calif., Oct. 24.—Clarence J. Berry, one of the original organizers of the Independent Oil Producers Agency, and president of the Berry Oil Co., Big Ten Oil Co., Surprise Oil Co., Ethel D Oil Co., C. J. Oil Co. and the Berry Holding Co. and a member of the American Petroleum Institute, died at the Good Samaritan Hospital in Los Angeles Thursday morning, October 23, following an operation for appendicitis.

Mr. Berry formed the Eldorado Oil Co., which was among the first to develop the McKittrick Field. About 1900 he leased these holdings to the Miley interests and started another development in the Maricopa Field near Taft and continued operations there. While he made his headquarters in San Francisco he passed much of his time in Taft and Los Angeles. He was a brother of the late Henry Berry, who at one time owned and managed the Los Angeles baseball club of the Pacific Coast league.

GASOLINE SALES IN QUEBEC

QUEBEC, Quebec, Oct. 27.—During the fiscal year ending July 1, 1930, 81,000,000 imperial gallons of gasoline was sold in Quebec, an increase from 66,000,000 gallons sold in the previous 12 months. Of the quantity sold, 76,000,000 gallons was subject to a tax of 5 cents per gallon, which added $3,800,000 to the revenues of the province.—C. E. K.

CRUDE PRICE CUT IN MOST OIL AREAS

(Continued from Page 29)

per cent of such oil stored each 30 days. The company runs about 7,500 bbls. of crude daily, a part of which is its own production.

Pennsylvania Crude Cut

The market for Pennsylvania Grade crude was reduced 15 cents on October 22 due to the overstocked condition of Pennsylvania refiners of products necessary for them to market wholesale. Cylinder stocks have been under sales pressure for some period and there has been considerable shading of prices of bright stocks. There has been a lack of demand and apparently no real recovery in the market position of refined products.

The Pennsylvania refiners have generally cut their runs to stills in an effort to stabilize their market but it is evident that their surplus stocks have not yet been liquidated to the point where any real improvement may be anticipated. A revival in export buying, which has been extremely sluggish during the past several months, would go a long way in bringing about better conditions in refined markets and as yet there are no signs of real activity in that branch.

Selling pressure is in evidence in some refining areas and while the curtailment in the manufacture of Pennsylvania oils has helped the situation somewhat the market cannot hope to benefit fully from this restricted output until some of the overstocked refiners succeed in liquidating additional quantities of their surplus. Domestic buyers are operating along conservative lines limiting their purchases to immediate requirements.

The total Pennsylvania crude run by refiners to stills during the week of September 20 averaged 77,557 bbls.; September 27, 72,331 bbls.; October 4, 64,141 bbls.; October 11, 56,266 bbls.; October 18, 53,322 bbls. The result of the business for the four-week period indicates that the consumption could not be maintained at the existing market level. The primary objective is to stimulate an increase of consumption. It is possible that the crude at the newly quoted price will be more attractive to refiners and marketers.

Bradford and Allegany oil in Tide Water pipe line	$2.40
Western Pennsylvania oil in National Transit pipe line	2.15
Southwestern Pennsylvania oil in Southwest Pennsylvania pipe line	2.10
West Virginia oil in Eureka pipe line	2.00
Southeastern Ohio oil in Buckeye pipe line	1.75

The combined production of the above fields, all classified as Pennsylvania Grade oil fields, in August was 60,000 bbls. Their potential production from the wells already in is about 81,000 bbls. a day. The fields have been prorating production for some time because the refinery demand could not keep up with the increased production which was practically all from the Bradford and Allegany Fields.

Total runs in the Bradford district for the week ending October 18 averaged 23,065 bbls. daily. The field has a potential in excess of 32,000 bbls. daily. The average production for the past four weeks has been 22,491 bbls. daily, comparable with 20,196 bbls. for the four weeks prior to the recent lift of curtailment by 10 per cent.

Cuts in Central West

The Ohio Oil Co. on October 28 reduced Illinois, Princeton Plymouth, and Wooster crudes 35 cents per barrel; Lima and Indiana 45 cents and Western Kentucky 40 cents, and the Pure Oil Co. cut Midland, Mich., crude 20 cents and the Standard Oil Co. of Indiana cut Muskegon, Mich., crude to the Mid-Continent price scale of Stanolind and others.

In the Rocky Mountains

The Ohio Oil Co. in the Rocky Mountain area, cut Elk Basin, Grass Creek, Lance Creek and Artesia 30 cents and Rock Creek 34 cents, Big Muddy 38 cents and Sunburst and Pondera in Montana, 10 cents per barrel.

The Mid-West Refining Co. met the Ohio Oil Co.'s Rocky Mountain prices wherever they both buy oil and cut Salt Creek crude ranging from 29 degrees up to 37 degrees to fit the Oklahoma-Kansas prices posted by the Stanolind and others for like grades.

The Imperial Oil Co. cut Petrolia, Ontario, crude to $1.50, and Oil Springs, Ontario, to $1.57, a 45-cent cut in both cases.

CRUDE CUT RELIEVES MARKET TENSENESS

(Continued from Page 28)

All grades of distillates were more actively traded, but the large quantity of material being offered seems to preclude any upward movement of prices. The low gravity, low cold test distillates were preferred in the trading and brought nearly as much as the lighter gravity distillates.

Gas Oils and Fuel Oils

The high gravity fuel oils and those having a low cold test were being supplied in quantities below the demand and prices were generally 5 to 7½ cents above those of a week ago. The material below 18 gravity continued to be quoted freely, but refiners were more in accord in their ideas about prices. It is also generally felt that there is plenty of this material to satisfy any normal increase in the seasonal demand to hold the price near its present level for some weeks into the future.

Lubricants and Wax

All grades of neutrals moved slowly and that market reflected the lesser consumption of motor oils so clearly indicated by the lesser consumption of gasoline starting in September. The reduction of 15 cents per barrel in the Pennsylvania crude price late last week and the general reduction in the Mid-Continent crude price schedule this week were depressing factors. Bright stocks continue to be freely offered and price concessions were offered to buyers holding orders.

Cylinder stocks were also under pressure. Steam refined stock is being offered by several refiners in the new Oklahoma City Field at 4 to 4½ cents, which is substantially under the price range quoted by the larger and older manufacturers of this material. The low quotations coming from Oklahoma City are being made the target for many accusations. Buyers use these low prices as a wedge in bidding for material offered by the older established cylinder stock manufacturers and the latter in turn answer that the quality of the stock being offered by the newer Oklahoma City plants is not consistent from day to day and could not be supplied in large quantities to satisfy export demands.

Wax was again weak in tone with no price changes posted. The consumption of wax has apparently slumped along with the lesser consumption of many other specialty products and the immediate future of the market is viewed with considerable uncertainty.

PRORATION REPORT IS PREPARED FOR VARIOUS FIELDS IN TEXAS

Compiled by David Donoghue, Technical Advisor to Central Committee of Texas)

	Prod'ction as of Jan. 4, 1930 bbls. per day	Prod'ction as of June 28, 1930 bbls. per day	Prod'ction as of Oct. 18, 1930 bbls. per day	Maximum Allowed by R.R. commissi'n, bbls.per day	Potential for prora-tion purposes only, bbls. per day	Estimated reasonable potential, bbls. per day
Panhandle	100,500	108,000	80,900	80,000	124,151	110,000
Methods of gauging—48 hours open flow, using average for last 24 hours. Methods of proration—Proration on basis of excess of total lease potential above a marginal exemption of 25 bbls. per well.						
North Texas	88,150	81,800	62,800	69,000	.....	80,000
Methods of proration—Proration on basis of excess of total lease poteatial above a marginal exemption of 6 bbls. per well for wells up to 2,000 ft. in depth; 12 bbls. per well for wells from 2,000 to 3,500 ft. in depth; 20 bbls. per well for wells over 3,500 ft. in depth						
West Central Tex's	54,100	61,000	47,650	52,000	.....	75,000
Methods of proration—Proration on basis of excess of total lease potential above a marginal exemption of 6 bbls. per well for wells up to 2,000 ft. in depth; 12 bbls. for wells from 2,000 to 3,300 ft. in depth; 20 bbls. for wells over 3,300 ft. in depth.						
West Texas	338,100	307,350	273,700	276,350	.....	650,000
Crane-Upton	43,000	38,900	34,150	29,000	47,103	40,000
Methods of proration—Proration on basis of excess of total lease potential above a marginal exemption per well of 12 bbls. All of Gulf's McElroy lease exempted except the north four sections.						
Ector	.....	20,550	7,900	7,500	35,145	35,000
Methods of gauging—25-hour open flow, 5% cut each period for 3 months. Methods of proration—Each lease is divided into 40-acre units. A lease of less than 40 acres is considered a unit. A tract of less than 40 acres adjoining a full unit, tract and unit belonging to same operator, is included with the unit on the basis of acreage. For instance a lease of 50 acres is considered 1.25 unit. 25% of outlet is divided equally among units, 75% of outlet is divided on basis of average unit potential.						
Howard-Glasscock	37,600	30,000	30,500	Nominations		50,000
Methods of gauging—2-hour gauge using 2nd hour's figure for computing. Methods of proration—Prorated on a basis of 12 bbls. minimum per well for wells producing from the 1,300-ft. and 1,800-ft. sands, and a 50-bbl. allowance to be made on all wells producing from the 2,200, 2,500 and 3,000-ft. sands, the remainder of the pipe line outlet to be allocated to all wells on the basis of excess potential, the average potential to apply to the Phillips-Coffee Field and total potential to apply to the Chalk, Dora Roberts and Henshaw Fields, the Umpire to make allowances for water wells when necessary.						
Winkler	87,000	70,300	60,050	80,000	126,362	60,000
Methods of gauging—One hour open flow. Methods of proration—Each lease is divided into 40-acre units. A lease of less than 40 acres is considered a fractional unit on basis of ratio of acreage in lease to full unit. 50% of outlet is divided equally among units. 50% of outlet is divided on a basis of total unit potential.						
Yates	137,600	115,450	101,900	100,000	5,500,676	400,000
Methods of gauging—One hour open flow, thereafter pressures and water taken into consideration. Methods of proration—Each lease is divided into 100-acre units. A lease of less than 100 acres is nevertheless considered a unit. A tract of less than 100 acres adjoining a full unit, tract and unit belonging to the same operator, is included with the unit on a basis of acreage. For instance a lease of 160 acres is considered 1.6 units. 25% of outlet is divided equally among units. 75% of outlet is divided on a basis of average unit potential. Seepage oil and oil from shallow pits is exempted in order to keep from polluting the Pecos River.						
East Central Tex's	23,200	40,100	42,000	41,850	.....	365,000
Van	5,800	24,900	28,450	27,500	269,677	350,000
Methods of gauging—Through 11-16-inch choke for 3-hour period, last 2 hours used. Methods of proration—Each lease is divided into 20-acre units. A lease of less than 20 acres is considered a fractional unit. 100% of outlet is divided on a basis of average unit potential. On fractional units the average potential is reduced to the ratio that the acreage in the tract bears to a full unit.						
Southwest Texas	76,200	78,100	96,900	67,150	.....	180,000
Chapman	.....	.....	7,000	11,000	42,088	9,000
Methods of proration—On basis of total lease potential.						
Darst Creek	.....	28,500	45,700	44,000	171,378	75,000
Methods of gauging—3-hour gauge. Field divided into 3 zones. Methods of proration—Basis of total lease potential to total field potential. Exemption of 100 bbls. per lease.						
Salt Flat	.....	28,250	28,200	17,400	80% of ptntl.	21,180	20,000
Methods of gauging—24-hour gauge. Methods of proration—On basis of total lease potential.						
Gulf Coast	138,750	137,000	167,800	150,500	.....	400,000
Raccoon Bend	8,600	12,000	9,200	12,500	.....	100,000
Sugarland	11,900	12,000	11,850	12,500	.....	100,000
Pettus	.....	5,000	7,800	4,000	.....	20,000
Methods of gauging—6-hour flow, last 3 hours used as gauge. Methods of proration—No gas lift allowed. Maximum gas-oil ratio 2,000 cu. ft. per barrel. For details see order of Railroad Commission.						

DR. DURAND IN CHARGE OF OIL TARIFF DATA

WASHINGTON, D. C., Oct. 25.—Dr. E. Dana Durand has been named by the tariff commission to take charge of its statistical work, effective November 1. Any statistical compilation relating to the commission's investigation of the cost of crude petroleum landed in New York from the Mid-Continent and from Venezuela, in compliance with a provision of the tariff bill passed in the closing days of the recent session of Congress, will come under the supervision of Doctor Durand, to whom the oil industry is quite familiar.

In the year 1900 Doctor Durand first took an active part in an investigation of the oil industry when the industrial commission, presided over by Thomas W. Phillips, formerly a member of Congress from Pennsylvania, took testimony that fills a dozen large volumes covering industry generally. However, oil was the chief object of the proceeding and the commission was authorized by a resolution introduced in the House of Representatives by Mr. Phillips who was one of the largest producers of oil in Pennsylvania when that State was the chief source of petroleum. Doctor Durand was appointed secretary of this commission, a conspicuous part of his work being the summarizing of the extensive testimony relating to oil.

Later Doctor Durand was a director of the census and for many years has been in the employ of the Department of Commerce, at this time being assistant to Secretary Lamont, his work relating to statistics. He is a native of Michigan. —C. E. K.

NEW MOTOR DEVELOPED

WASHINGTON, D. C., Oct. 27.—A new Diesel oil-burning motor has been developed by the United States Navy that will eventually replace gasoline engines aboard small boats of the service according to government engineers of the Bureau of Engineering. This result has been accomplished by experiments carried on at Annapolis, Md. It is believed that the 50-horsepower engine that has been built will reduce fire hazard incident to storage and use of gasoline. More than 1,000 small craft of the Navy are available to be equipped with this motor if additional tests confirm those that have been made. Engineers say the weight of this engine can be further decreased 40 per cent.—C. E. K.

TWO COMPANIES ASK PERMITS

DENVER, Colo., Oct. 27.—The Platte Valley Petroleum Co. has applied to the Public Utilities Commission for a permit to build a pipe line from its discovery well on the Greasewood Dome in Weld County, northeastern Colorado, to Orchard, on the Union Pacific railroad, a distance of 10 miles. The Continental Oil Co. also has filed an application for a permit to construct a line from the well to Orchard and thence by way of Brighton to its refinery now under construction just north of Denver.

Influence of Fuel on Ship Building

Differential on Diesel Oil Held Partly Responsible for America's Lagging in Motorship Construction

INDIANAPOLIS, Ind., Oct. 28.—The United States, the largest oil producing and refining country in the world, is lagging behind all other maritime nations in motorship development, said Edward B. Pollister, president of the Busch-Sulzer Brothers Diesel Engine Co., in an address here today before the tenth annual Middle West Foreign Trade and Merchant Marine Conference.

On June 30, last, Mr. Pollister said, 1,920,505 gross tons in motorships were under construction throughout the world, this being 64 per cent in excess of the steamer tonnage under construction at the same time.

Citing Lloyd's, Mr. Pollister presented the following table covering 6,000 to 15,000-ton ships under construction throughout the world as of June 30, 1930:

Country—	Steamers	Motorships
Great Britain	20	85
Germany	5	17
Holland	None	14
United States	8	3
Sweden	None	11
Japan	None	11
France	5	2
Denmark	None	5
Spain	None	4
Italy	1	3
Russia	None	4
Norway	None	1
Total	39	160

"This list shows further," said Mr. Pollister, "that the maritime nations of Norway, Denmark, Sweden, and Holland are building no steamers at all in those sizes, and have 31 motorships under construction; Germany has built modern motorships to replace the obsolete steamers lost to her in the war; Great Britain, the land of coal, is building only 20 steamers, as compared with 85 motorships; while the United States, the land of oil, has so far built steamships almost exclusively.

America's Failure

"Of modern Diesel passenger liners of over 9,000 tons gross, there are now built and building throughout the world a total of 82, including 20 ships to be launched in 1930; and the United States with its extensive passenger shipbuilding program well under way, has not a single such motorship, built or building.

"In direct contrast to Lloyd's findings for the rest of the world, the failure to adopt the Diesel engine is the outstanding feature of the new American merchant marine. On land, America leads the world in industrial efficiency. On the sea, she is attempting to regain her lost prominence without even keeping pace with the other nations of the world in the utilization of the economical Diesel engine.

"Congress provided in the Merchant Marine Act of 1928 for government loans to private citizens for shipment construction up to 75 per cent of the cost of the ships, specifying that 'such vessels shall be fitted and equipped with the most modern, the most efficient, and the most economical engines, machinery, and commercial appliances.' Such loans have now been made for 26 steamships, passenger-freight, 1 motorship, and 12 motor tankers.

"That the Diesel engine is 'the most modern, the most efficient, and the most economical' is without question. That the new type of both passenger and cargo foreign motorships that have in recent years been coming to our shores in ever increasing numbers is the most modern merchant ship is clearly established by the excess of 800,000 tons of motorships over steamers under construction throughout the world on June 30, 1930.

An Unusual Situation

"An analysis of this unusual situation clearly discloses that the American Diesel engine builder is entirely to blame, in that he has failed to sell the Diesel to the shipowner, the naval architect and the shipbuilder. He has tried, but his efforts have been a miserable failure. He has been outsold by more powerful steam interests.

"The United States emerged from the war with a huge fleet of slow speed steam vessels—which at once became a menace to the ships of other maritime nations that, before the war, had carried our commerce. It would seem that the reply to this menace was the launching abroad of a higher-speed economical motorship building program to provide an effective weapon to drive the proposed new American Merchant Marine off the ocean.

"The foreign motorship began to appear in force in 1920, and with praiseworthy vision, the United States Shipping Board at once took steps to insure the development on a substantial scale in the United States of large marine Diesels, against the inevitable return of shipbuilding in this country to meet the need for providing similar modern motorships to foster and care for our growing export trade. Twenty-five million dollars was appropriated by Congress for this Diesel program and was spent in converting 23 idle government-owned steam vessels to motorships, with American Diesels ranging in sizes up to 4,000 horsepower, supplied by five different American builders.

Fuel Consumption

"The fuel consumption of these ships was reduced to less than half and their speed increased. Some of these engines were entirely experimental, and as first engines of their kind developed more or less serious operating troubles, the burden of which was cheerfully borne by the Shipping Board to carry out its purpose in developing the large Diesel in America so that it would be available later in a perfected state for American shipowners. Some of the largest engines followed established American and European designs and proved from the start to be altogether reliable in operation.

"Had the Shipping Board continued to operate the government merchant fleet and built replacement tonnage, undoubtedly full advantage would have been taken of this Diesel development program, by paralleling European development in creating a great fleet of fast economical American motorships. However, in the passing of the government fleet to private hands and the building of ships by private shipping companies, much of the advantage of the Shipping Board's Dieselization project has been lost, and, in fact, the operating troubles of certain experimental engines, though in the minority, have even reacted to give the Diesel engine in general a bad name in American shipping circles.

Risk in Delay

"The new privately owned Merchant Marine that has been created is new. These new people have entered the shipping game just at the time when this revolutionary change from steam to the more economical internal combustion propulsion of ships is taking place abroad. There is a grave danger that the naturally cautious entry of new people in shipping ventures may act to retard the adoption of the modern motorship in this country. Proceeding thus cautiously with what our shipyards know best how to build and with what the nucleus of our old-time operating personnel know best how to operate—steamships—we run a serious risk of being left behind in the international race for maritime supremacy, with obsolete steamers against modern motorships, as in the past we were left behind with fine old clipper sailing ships when we failed to quickly adopt the steamship.

"Of greater importance at this time, when we are trying to hold and increase our foreign trade, our exports will be thus burdened with higher transportation charges than competitive Europe—or the alternative, our new American Merchant Marine, notwithstanding the general financial assistance accorded to it under the Jones-White act, will be doomed to failure within a few years in trying to operate less economical steam vessels against the fleets of modern motorships being built abroad.

Internal Combustion Age

"The internal combustion age has revolutionized transportation. Internal combustion means fuel combusted directly within the power producing engine in place of the less efficient, roundabout method of burning fuel under a boiler, generating steam at high pressure, and utilizing the expansive power of steam in the power producing engine.

"The gain in internal combustion thermal efficient is approximately 100 per cent over steam, without taking into account the utilization of the waste heat recoverable from the Diesel exhaust and cooling water. In large marine installations, exhaust gas boilers are installed to utilize this waste heat and the gain in internal combustion thermal efficiency is then 150 per cent over steam.

"In selling to the Merchant Marine, the Diesel builder with an annual output of $3,000,000 must compete, not only with similar small manufacturers of boilers and steam equipment, but with steam turbine builders with outputs of around $300,000,000. If the Diesel builder can afford to spend annually $100,000 to sell his Diesels, the turbine builder can spend to sell his turbines and electrical equipment $10,000,000.

"So, in America, you may read full-page advertisements forecasting an all-electric American Merchant Marine, and listen to the same story in your home over the radio of a new 'era of American ideals in shipping propulsion efficiency'—the steam-turbo-electric era—a costly but effective method of selling the steamer against the motorship that is not available to the smaller Diesel concern.

"Steam turbo-electric ships, higher in first cost, and burning over twice the fuel consumed by the Diesel, may soon prove to be expensive luxuries. Ships with the lowest cash outgo per voyage stay longest on the ocean.

Bunkering Prices

"At New York, in 1928, the price of boiler fuel was suddenly and substantially reduced to levels of around $1, with Diesel fuel quoted at around $2. Explanations are given that the abnormally low price of bunker oil is due to an influx of low grade Venezuela crudes; and if this is the case the proposed tariff on imported oil would correct this situation very quickly. The average fuel price at New York for the years 1925, 1926 and 1927 of $2.25 for Diesel oil and $1.72 for bunker oil compares with present prices of $2 and $1.15 per barrel, respectively, that is, the New York price of Diesel fuel has been boosted from a premium of 31 per cent over the price of bunker fuel to a premiuom of 74 per cent. (Editor's note—The current bunker fuel price at New York is $1.05.)

"Current bunkering prices at various ports throughout the world are reported by the "British Motorship":

Port—	Furnace fuel oil per ton L. s. d.	Diesel oil per ton L. s. d.	Diesel oil premium %
U. K. ports	3 7 6	4 2 6	22
Aden	3 0 0	3 0 0	0
Aden	3 12 6	3 17 6	7
Algiers	3 12 6	4 7 6	21
Antwerp	*3 7 6	*4 2 6	22
Balboa	†$1.20	†$1.80	50
Barcelona	*4 0 0	*4 17 6	22
Bilbao	*4 0 0	*4 17 6	22
Bombay	3 15 0	4 0 0	7
Calcutta	3 15 0	4 0 0	7
Cape Town	4 2 6	4 15 0	15
Colombo	3 15 0	4 0 0	7
Copenhagen	*3 7 6	*4 2 6	22
Hamburg	*3 7 6	*4 2 6	22
Havre	*3 12 6	*4 10 0	24
Hongkong	3 10 0	3 15 0	7
Jamaica	†$1.20	†$1.80	50
Las Palmas	3 3 6	3 18 6	24
Manila	3 15 0	4 0 0	7
Marseilles	*3 12 6	*4 10 0	24
Melbourne	3 17 6	4 2 6	7
Mombasa	4 0 0	4 5 0	6
New Orleans	†$1.05	†$1.80	71
New York	†$1.15	†$2.00	74
Oslo	*3 7 6	*4 2 6	22
Port Said	3 12 6	4 10 0	24
Rio de Janeiro	$15.00	$32.70	118
Rotterdam	Fl. 41.00	Fl. 50.00	22
San Francisco	†$0.89	†$1.26	42
Seattle	†$1.10	†$1.68	53
S'ngapore	3 10 0	3 15 0	7
Trinidad	†$1.05	†$1.80	71
Valparaiso	†$2.00	†$2.50	25
Yokohama	3 10 0	3 15 0	7

*Per ton metric. †Per barrel.

Full Influence on Builders

"It is apparent at once that the price

CALIFORNIA PIPE LINE SUMMARY FOR SEPTEMBER, 1930

	Stocks Oct. 1	Sept. pipe line Runs	Total	Less Sept. 1 stocks	Market'ble oil	Daily aver'ge	Reported prod'ction
Belridge	17,846	60,162	78,008	18,275	59,733	1,991	‡59,733
Coalinga	89,104	267,820	356,924	97,449	269,475	8,649	‡259,475
Elk Hills	86,166	540,827	626,993	92,738	534,255	17,809	‡534,255
Elwood	61,665	1,136,521	1,198,186	70,973	1,127,213	37,574	1,128,347
Fruitvale	24,608	78,476	103,084	33,717	69,367	2,312	71,156
Inglewood	37,863	513,101	556,964	37,741	513,223	17,107	514,211
Kern Front	109,438	298,395	407,833	108,893	298,940	9,965	298,713
Kern River	79,781	138,955	218,736	139,688	79,048	2,635	‡79,048
Kettleman Hills	37,259	659,662	696,921	36,114	660,807	22,027	684,362
Lawndale	1,871	8,278	10,149	1,981	8,168	272	‡8,168
Lost Hills	8,169	10,067	18,236	8,667	9,569	319	‡9,569
McKittrick	38,686	114,626	153,312	37,053	116,259	3,875	‡116,259
Maricopa Flat	43,934	223,219	267,153	40,466	226,687	7,556	244,523
Midway-Sunset	443,568	1,605,814	2,049,382	445,261	1,604,121	53,471	‡1,604,121
Montebello	35,743	207,113	242,856	30,629	212,227	7,074	219,933
Mount Poso	534,805	223,823	758,628	475,363	283,265	9,442	284,947
Potrero	8,467	58,493	66,960	5,602	61,358	2,045	‡61,358
Round Mountain	22,843	115,064	137,907	18,631	119,276	3,976	121,952
Santa Fe Springs	*260,657	*2,775,652	*3,036,309	*255,833	†3,053,548	†101,785	†3,047,742
Ventura Avenue	81,361	1,400,316	1,481,677	81,058	1,400,619	46,687	1,407,599
West Coyote	16,205	267,659	283,864	11,658	272,206	9,074	278,942
Wheeler Ridge	2,998	18,738	21,736	4,016	17,720	591	‡17,720
Sub-Total	2,043,037	10,722,781	12,765,818	2,051,806	10,987,084	366,236	11,052,139
Capitan							
L. A. & Salt Lake					46,907	1,564	
Rincon					77,406	2,580	
Santa Maria					89,291	2,976	
Summerland					8,163	272	
Watsonville					1,800	60	
Whittier					42,057	1,402	
Ventura-Newhall					149,284	4,976	
Sub-Total					414,908	13,830	
Grand Total					11,401,992	380,066	

*Excludes Wilshire Oil Company.
†Includes Wilshire Oil Company.
Reported production same as marketable oil. Stock figures represent lease inventory only.

differential of nearly two to one between boiler fuel and Diesel fuel at New York is decidedly out of line with all of the rest of the ports of the world.

"With motorships increasing, this high differential will either be reduced to normal or bunkering on the Atlantic Coast will be reduced by motorships bunkering in other ports. Already, instances have occurred where motorships have carried full bunkers of Diesel oil purchased in ports of call where obtainable at low prices and have sold the excess over round voyage requirements at a good profit in ports where Diesel oil was higher. This practice will increase.

"Over the life of a ship, 20 to 25 years, normal fuel prices should be the basis of selection of equipment, rather than temporary prices prevailing during the last three years on the Atlantic seaboard, but the immediate low priced bunkering fuel available in his home port has been a strong influence on the eastern American shipbuilder, in spite of the example of foreign competitors building motorships from the same Atlantic route —between Europe and America."

NEW JERSEY STANDARD IMPORTS AND RUNS CUT

NEW YORK, Oct. 27.—Following their policy of cutting down imports of crude oil and products and reducing refinery runs so far as consistent with current requirements, subsidiary operating companies have effected further decreases, Standard Oil Co. of New Jersey announces.

This policy, the announcement states, was adopted in the interests of the petroleum industry of the United States and not for particular advantage to the companies. With a large surplus both of crude and products on hand, it is admitted that the petroleum industry must scale down operations to avoid needless waste in storage charges and oversupplied markets, the statement continues.

For the nine months of 1930 ending September 30 total imports of crude oil and refined products by subsidiary companies of Standard Oil Co. of New Jersey were 85 per cent of those for the corresponding nine months of 1929.

Refinery runs for the first nine months of 1930 were at a daily average of 376,683 bbls., against a daily average of 399,790 bbls. in the first three quarters of 1929. In the week ending October 3 the actual daily average of refinery runs by subsidiary companies was 361,437 bbls.

E. S. COLE DIES

LOS ANGELES, Calif., Oct. 27.—Closely identified with California's petroleum industry for more than 15 years, E. S. Cole died at the Good Samaritan Hospital, Los Angeles, October 22. Mr. Cole was born in Victoria, Australia, July 9, 1872. Prior to entering the employ of the Midway Gas Co. he held a responsible position with the Standard Oil Co. of California. During his years spent at Ventura Mr. Cole was actively engaged in construction work on a number of large pipe line projects for the company.

W. W. COPP DIES

LOS ANGELES, Calif., Oct. 27.—William W. Copp, petroleum engineer and geologist, died at the United States Veterans' Hospital in San Fernando from plumonary tuberculosis contracted during his service as first lieutenant of engineers during the war. Mr. Copp was a native of New York and was 48 years old. He joined the Marland Oil Co. late in 1924 and was a member of the staff when this company discovered Seal Beach. He also aided in exploratory work at Kettleman Hills.

LINE TO JOINER POOL

FORT WORTH, Tex., Oct. 27.—H. L. Hunt, Inc., of Shreveport, La., is laying 2½ miles of 4-inch line from the Joiner Pool to the Missouri Pacific railroad near Friar, Rusk County, East Central Texas.

CALIFORNIA OILFIELD OPERATIONS FOR SEPTEMBER, 1930

According to figures collected by the American Petroleum Institute, Pacific Coast Office, the total production of crude oil in California for September amounted to 17,984,306 barrels, an average of 599,477 barrels per day. This is a decrease of 6,022 barrels per day under August production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 789,838 bbls. The total stocks at the end of the month were 180,433,952 bbls. The total stocks decrease for 1930, up to September 30, was 4,329,781 bbls.

Forty-seven wells were completed during the month with an initial daily production of 52,043 bbls., compared with 59 wells completed during August with an initial production of 53,064 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

District—	Barrels per month	Daily average Sept., 1930	Aug., 1930	Sept., 1929
Kern River	381,114	12,704	13,410	16,840
Mount Poso	287,425	9,581	10,546	7,154
Fruitvale	70,228	2,341	2,270	1,885
Round Mountain	124,019	4,134	3,908	1,139
McKittrick	120,273	4,009	4,017	4,535
Midway-Sunset	1,845,938	61,531	62,850	68,036
Elk Hills	535,637	17,855	18,058	17,440
Lost Hills-Belridge	67,730	2,258	2,258	4,290
Coalinga	273,924	9,131	9,264	9,570
Kettleman Hills	660,806	22,027	13,413	6,193
Wheeler Ridge	17,721	591	578	662
Watsonville	1,875	63	63	63
Santa Maria	89,046	2,968	3,627	3,937
Capitan	.....	.....	61	.....
Summerland	8,430	281	286	426
Elwood	1,127,659	37,588	42,844	20,633
Santa Barbara	1,800	60	..	17
Rincon	77,062	2,569	2,444	2,996
Ventura Avenue	1,399,048	46,635	47,510	61,634
Ventura-Newhall	149,699	4,990	4,545	4,974
Los Angeles-Salt Lake	46,807	1,560	1,554	1,492
Whittier	42,057	1,402	1,433	1,530
Fullerton (Brea Olinda)	347,460	11,582	11,640	12,812
Coyote	326,052	10,868	10,960	11,047
Santa Fe Springs	3,058,723	101,957	108,898	280,894
Montebello	212,984	7,099	7,169	9,386
Richfield	271,706	9,057	9,105	15,055
Huntington Beach	868,731	28,958	29,180	42,642
Long Beach	3,012,552	100,418	103,315	169,876
Torrance	337,040	11,235	11,121	13,072
Dominguez	298,630	9,954	10,024	8,310
Rosecrans	192,705	6,423	6,989	7,335
Inglewood	511,614	17,054	17,450	22,824
Newport	1,200	40	40	40
Seal Beach	566,963	18,899	20,051	39,625
Potrero	60,055	2,002	1,987	844
Lawndale	8,084	269	298	904
Playa Del Rey	581,509	19,384	12,333	.....
Total	17,984,306	599,477	605,499	870,142
August	18,770,466	605,499	.....	.....
Decrease	786,160	6,022	.....	.....

STOCKS

	Sept. 30, 1930	Aug. 31, 1930	Sept. stock decreases	Sept. 30, 1929
Heavy crude, heavier than 20° A.P.I., including all grades fuel	110,959,288	111,431,519	472,231	110,812,803
Refinable crude, 20° A.P.I., and lighter	42,207,293	41,702,823	*504,470	40,711,584
Gasoline	15,906,443	16,259,805	353,362	15,223,742
Naphtha distillate	3,131,555	3,327,127	195,572	3,287,087
All other stocks	8,229,373	8,502,516	273,143	10,149,606
Total all stocks	180,433,952	181,223,790	789,838	180,184,822

*Increase.

DEVELOPMENT

District—	Development: New rigs up	Active drlg.	Completed	Daily initial output	Active producing	Abandoned wells: Drillers	Producers
Kern River	..	2	1	200	919	..	..
Mount Poso	..	1	..	...	68	..	..
Fruitvale	1	1	..	...	17	..	..
Round Mountain	4	3	2	495	27	..	..
McKittrick	..	..	..	...	253	..	..
Midway-Sunset	3	17	4	642	1,937	..	7
Elk Hills	..	.	..	..	239	..	..
Lost Hills-Belridge	..	2	..	..	167	..	1
Coalinga	..	..	1	10	728	..	..
Kettleman Hills	3	8	1	10,150	8	..	..
Buttonwillow Gas Field	..	1	..	..	7	..	..
Wheeler Ridge	..	..	..	..	33	..	..
Watsonville	..	..	..	..	6	..	..
Santa Maria	1	2	..	..	186	..	1
Capitan	..	1	..	..	1	..	..
Summerland	..	..	..	..	97	..	..
Elwood	1	5	3	22,750	48	..	..
Santa Barbara	..	1	1	150	1	..	..
Rincon	..	2	1	250	33	..	..
Ventura Avenue	1	19	2	985	150	..	..
Ventura-Newhall	2	13	1	10	411	..	..
Los Angeles-Salt Lake	..	..	..	..	229	..	39
Whittier	..	1	..	..	161	..	..
Fullerton	..	1	..	..	366	..	..
Coyote	..	2	..	..	196	..	..
Santa Fe Springs	..	4	1	490	470	1	..
Montebello	..	1	..	..	165	..	..
Richfield	..	..	..	..	172	..	..
Huntington Beach	..	4	1	25	468	2	..
Long Beach	15	82	13	5,645	887	2	2
Torrance	..	..	..	..	533	..	1
Dominguez	..	2	..	..	60	..	..
Rosecrans	..	4	..	..	106	..	..
Inglewood	..	2	..	..	212	..	..
Newport	..	.	..	..	4	..	..
Seal Beach	..	1	..	..	133	..	..
Potrero	..	7	..	..	15	1	..
Lawndale	..	1	..	..	8	..	..
Playa Del Rey	54	98	15	10,241	42	1	..
Miscellaneous drilling	14	180	..	..	..	8	..
September	99	470	47	52,043	9,543	15	51
August	115	433	59	53,064	9,497	22	15
Decrease	16	*37	12	1,021	*46	7	*36
Average for year 1929	109	610	76	100,625	10,550	26	18
Average for year 1928	107	520	59	56,802	10,823	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	12

*Increase.

PRESIDENT PHILLIPS REPORTS ON PIPE LINE

In his report to stockholders of the Phillips Petroleum Co., President Frank Phillips said: "Rapid progress is being made on the 800-mile oil products pipe line from the Panhandle of Texas to St. Louis, Mo., via Wichita, Kans., and Kansas City, Mo., more than 200 miles have been laid and pipe is being received at the rate of 10 miles per day. Construction of pump stations, tankage, telephone lines, etc., is proceeding rapidly and we are assured that our products will be moving through this line to our marketing outlets by late winter. The Phillips Pipe Line Co. will also participate in the ownership of the Great Lakes pipe line, now being built, which will have a total length of 1,400 miles and will transport gasoline to marketing districts of Des Moines, Iowa, Omaha, Neb., Minneapolis, Minn., and Chicago, Ill., which the former does not directly reach. Your company, therefore, will enjoy the economies of pipe line transportation throughout most of its distributing area.

"The Phillips Natural Gas Co. is constructing lines and compressor stations and will, within the year, begin to purchase large quantities of natural gas from us for transportation and sale to other companies. The 24-inch gas pipe line, 1,000 miles in length, being constructed from the Panhandle of Texas to Chicago in which this company is interested with Standard, Insull, Cities Service and the Central States Group is making progress at an increasing rate. It is anticipated that deliveries of gas will be made in Chicago in the fall of 1931. Under contracts executed the Phillips Pipe Line Co. and the Phillips Natural Gas Co. will become subsidiaries and all of their properties will be acquired at cost."

GOVERNMENT TO TRAIN VENEZUELAN DRILLERS

The government of Venezuela recently issued a decree which provides for the early inauguration of a government institution which has for its purpose the education of young men, citizens of the State of Zulia, for responsible positions as oil well drillers. The institution will be known as the "Escuela de Perforadores Gral. Juan Vicente Gomez."

The course of study and training will range over a period of 30 months, and the greater part of the instruction will be based on actual field work on the drilling rig under normal operating conditions. Theoretical instructions will also be included, but to a lesser extent. The decree regulates all the relations which will obtain between the students and the oil companies.

While the oil companies were consulted in this matter before the decree was promulgated and expressed their willingness to co-operate fully with the government, it is believed that the real purpose of the school will be slow of realization. The representatives of the various oil companies have consulted together on this matter as well as on the new regulations which have recently been put into effect to carry out the petroleum laws, and instead of voluntary co-operation on their part it seems more likely that an attitude of passive resistance will be shown.

McCOOK COMPANY INCLUDED

CHICAGO, Oct. 27.—Included in the merger between the Vacuum Oil Co. and the Wadhams Oil Co. is the McCook Oil Sales Co., which has operated from the old refinery at McCook. The refinery was sold to the Insull interests so that property does not go to the Vacuum Oil Co.

GEORGE W. LUCAS DIES

HOUSTON, Tex., Oct. 25.—George W. Lucas, general superintendent of production for Shell Petroleum Corp., Gulf Coast division, died at his home here. Mr. Lucas was a veteran with the Shell companies, having been with them for 16 years. For the past five years he had been in Houston.

PRORATION IN RUMANIA DURING NEXT SIX MONTHS

NEW YORK, Oct. 27.—Rumania, in adopting a proration policy patterned after similar curtailment measures in the United States, has decided upon allotments to principal producers for the next six months, according to reports from Bucharest.

A 24-hour open flow test of producers conducted last month determined that potential production of Rumania is more than 31,000 tons per day, considerably more than had been anticipated. The heavy flow is attributed to the accumulation of gas pressure incidental to the shutting down of many wells and the beaning down of others.

The total allowable production for Rumania has been fixed by the proration committee at 13,500 tons per day for October, and while production totals will vary a little from month to month, the daily average will hold substantially around 13,500 tons until March 31, 1931. Production allowed principal Rumanian countries for this period, and the percentage of total Rumanian production for each company is as follows:

Company—	Tons	Per cent of total
Astra Romana	58,294	15.32
Concordia and Sirius	50,717	13.26
Phoenix Group	50,313	13.15
Steaua Romana	47,855	12.49
Credit Minier	40,648	10.52
Romano Americana	30,142	7.67

The conservation program now in effect in Rumania was made possible largely through the efforts of Royal Dutch-Shell and Standard of New Jersey subsidiaries operating in that country. It is planned to hold test runs at six months' intervals to determine the allowable output for the succeeding six months.

Under the prorating plan, small companies producing 100 tons per day or less are not subject to any restriction of output. There are close to 100 companies falling within this category.

Curtailment of crude production in Rumania has strengthened the market for refined products in that country, and a lessening of direct competition with American sellers is looked for as a result. According to reports received by local operators, benzine in Rumania, while reduced recently in line with the cut made by the Export Association in this country, is still higher than the American market. Prior to the prorating plan, gasoline prices in Rumania were under those quoted at United States Gulf ports. Under Rumania's conservation plan, Royal Dutch-Shell and Standard Oil Co. of New Jersey interests have agreed to purchase surplus stocks of gasoline for export.

Late Fields

(Continued from Page 40)

drilled in the county during the past year indicate that a granite ridge exists in Rush County and runs in a northwest and southeast direction.

Another test has been announced in the north end of Eastborough Pool in Sedgwick County to be drilled by the Blackwell Petroleum Co. The test is No. 1 Rounds, NE cor., Section 17-27-2, approximately 1½ miles northeast of the National Refining Co.'s well in Section 18-27-2, which is the most northern producer in the pool.

PROGRESS ON VAN LINE

FORT WORTH, Tex., Oct. 27.—The Oklahoma Contracting Co. has one crew welding on the Humble Pipe Line Co.'s 10-inch line from the Van Field, Van Zandt County, East Central Texas, to the Louisiana-Texas line and started ditching work on Oct. 25. Another crew is working out of Longview toward the Van Field. The line is to be completed within about two months, and will carry crude from the Van Field to the Standard Pipe Line Co.'s main station at Moore, Louisiana, near Shreveport, from which place the latter company will run it to the Standard Oil Company of New Jersey's refinery at Baton Rouge, Louisiana.

ESTIMATE OF WORLD OIL PRODUCTION INDICATES RUSSIA PASSING VENEZUELA

By Valentin R. Garfias
Manager, Foreign Oil Department, Henry L. Doherty & Co.

The preliminary figures at present available indicate that the world's petroleum production in 1930 will be close to 1,444,000,000 bbls., showing a decrease of about 44,000,000 bbls. from 1929 compared with an increase of 161,000,000 bbls. in the previous year.

The important developments so far this year have been the partial normalization of production in the United States, resulting in an estimated decline of about 69,000,000 bbls. in the face of a much larger available potential production. This has been particularly beneficial as the consumption of all oils in the United States will probably be lower in 1930 than in 1929. Storage at the end will be somewhat greater than at the beginning of the year although the rate of increase has been materially reduced during 1930.

Other outstanding events have been the increase of production of the Russian and Rumanian fields, it being estimated that if production follows approximately present trends for the balance of this year and during 1931, Russia will replace Venezuela as the second ranking country, Rumania, Persia as fourth in rank and Dutch East Indies outrank Mexico for sixth position.

Should present proration and similar agreements continue throughout the year, the production in the United States, which increased from 901,000,000 bbls. in 1928 to 1,006,000,000 in 1929, should decline in 1930 to 937,000,000 bbls. more nearly to conform with demands. Estimates have been made showing that production could be doubled, if not trebled should conservation be discontinued in Oklahoma, California and Texas.

Venezuela

It is estimated production in Venezuela will be about 139,000,000 bbls., or an increase of 2,000,000 bbls. over 1929. The production which could easily have been larger has been regulated by conservation agreements between the important companies. Disappointing results have been the rule in wildcat operations outside of the producing region near Lake Maracaibo.

The 1930 yield in Russia is estimated at about 126,000,000 bbls., showing an increase of 23,000,000 bbls. from the previous year. Production has increased about 43 per cent during the past two years, in accordance with the five-year expansion program.

The carefully regulated production of the Persian fields is being maintained at a yearly figure of about 44,000,000 bbls., the development of the oil resources of this country affording an excellent illustration of the benefits derived from the unit plan of operation of pools on a large scale.

Production of the Dutch East Indies fields has gradually increased.

The fields of Colombia, Peru, Trinidad, Argentina, India, Sarawak, Poland, Japan and Egypt probably will not offer important changes during 1930, while those of Ecuador, Canada, Iraq and Germany should show a moderate increase in production.

The accompanying table shows the world's production for 1928 and 1929 as published by the United States Bureau of Mines, and the estimated figures for 1930.

WORLD PETROLEUM PRODUCTION
(In thousands of barrels)

		1930	1929	1928
1.	United States	937,000	1,006,000	901,474
2.	Venezuela	139,000	137,000	105,749
3.	Russia	126,000	103,000	87,300
4.	Persia	44,000	45,250	43,461
5.	Mexico	41,000	44,689	50,151
6.	Rumania	41,000	34,930	30,773
7.	Dutch East Indies	38,000	37,924	32,118
8.	Colombia	20,000	20,385	19,897
9.	Peru	13,000	13,404	12,006
10.	Trinidad	9,200	8,810	7,684
11.	Argentina	9,000	8,800	9,070
12.	India	7,200	8,470	8,741
13.	Sarawak	4,700	5,277	5,223
14.	Poland	4,500	4,953	5,493
15.	Japan	2,000	2,010	1,944
16.	Egypt	1,800	1,866	1,842
17.	Ecuador	1,500	1,351	1,084
18.	Canada	1,300	1,133	624
19.	Sakhalin	1,300	1,160	677
20.	Germany	1,000	711	630
21.	Iraq		798	712
22.	France		516	512
23.	Czechoslovakia	1,300	93	94
24.	Italy		44	46
25.	Others		30	24
	Total	1,444,000	1,488,604	1,327,339

NO PRICE CHANGES IN PACIFIC COAST MARKET

LOS ANGELES, Calif., Oct. 27.—There were no changes in refined oil prices on the Pacific Coast this week, notwithstanding that a large quantity of fuel oil and gasoline changed hands. In addition to the deliveries of fuel oil and gasoline being made by the Wilshire Oil Co. to the Shell, Standard and Union on the basis of a contract made several weeks ago, another large buyer has disposed of 1,500,000 bbls. of fuel oil and 500,000 bbls. of gasoline for delivery during the next several months. The latter sale is reported to have been made because of an urgent need for ready cash.

Kettleman Hills, notwithstanding adoption of unified development, will be a disturbing factor in the California refined oil market for several years, unless some method is devised to retain centralized control of all oil and natural gasoline produced by the two operating units. It so happens that a large part of the probable productive acreage in the North Dome is government land held by operators under leases in conformity with the leasing act of 1920. These leases provide a sliding scale of royalties which accrues to the Government as lessor. This oil and natural gas is sold by the Government to the highest bidder for cash in accordance with prescribed regulations, but if this policy is continued it will have a tendency to undermine refined oil prices and ultimately may lead to decreased prices for both crude oil and gasoline.

Already government royalty oil is being felt in the refined oil market up through the San Joaquin Valley and in the San Francisco Bay region. It does not require any stretch of the imagination to visualize the adverse effect which this royalty oil will exert on refined oil prices when the production of this field reaches, say, 50,000 bbls. per day. When crude oil production reaches this figure each of the two units will be producing approximately 25,000 bbls. daily.

Unit No. 1, comprising holdings of the Standard Oil Co., consists of fee acreage, but Unit No. 2 made up for the most part of government leases, will carry the usual prescribed royalty. On the basis of a minimum royalty, the Government will be selling more than 3,000 bbls. of crude oil per day to the highest bidder. If this oil is sold to someone who undersells the gasoline market the prices of competitors must of necessity be reduced to meet competition. In other words, this royalty oil can easily wreck the entire market and thus partly void the projected unit plan of development which operators are trying to put into effect to prevent waste and stabilize general conditions.

HIGHER TAX LIKELY IN DISTRICT OF COLUMBIA

WASHINGTON, D. C., Oct. 27.—A boost in the gasoline tax from 2 to 4 cents per gallon, along with other increases in automobile taxes, to produce an additional $3,600,000 per annum in the revenues of the District of Columbia, has been recommended to the District commissioners by the traffic advisory council and the traffic committee. This action is virtual assurance that the commissioners will approve the plan by their recommendations to congress in December.

The proposed tax will match the levy made by Maryland and Virginia on gasoline sold in those states. This recommendation was strongly fought and the opponents will continue efforts to defeat it.

It is recognized that placing a 4-cent tax on gasoline in the District of Columbia will have a tendency to raise the tax in states that are still below the 4-cent level. The tax will not only be used for rural improvement but on the streets of this city and is really in the nature of a municipal tax, as the restricted area over which it applies is largely laid out in streets and avenues.

As originally framed, the report approved included sidewalks among the expenses to be paid by the gasoline and other automobile taxes but as a result of criticism that part was stricken out. —C. E. K.

PLANES EQUAL TELEGRAPH

The use of airplanes for carrying messages, and incidentally a greater consumption of gasoline, will probably result from the fact air-mail service is now able to deliver night letters as quickly as telegraphed messages, in a number of places. An incident in which this is true is cited in California where overnight air mail-passenger service flown by Boeing system between Seattle, Tacoma, Portland and California cities gives as speedy delivery of air mail in California as night letters telegraphed. This line lacks only 115 miles of spanning the entire air distance between the Mexican and Canadian boundaries.

Letters posted at the close of business in Washington and Oregon cities reach San Francisco shortly after midnight, Los Angeles before breakfast and San Diego at the breakfast hour. Mail is distributed on the first morning carrier delivery.

MEXICAN PRODUCTION

NEW YORK, Oct. 25.—Mexican crude oil production continues to decline, August output being 2,663,219 bbls., against 2,766,931 bbls. in the previous month and 3,257,832 bbls. in August, 1929.

Pan American was the principal producer, followed by Sinclair, Penn Mex Fuel, Standard Oil Co. of New Jersey, Gulf, Mexican Seaboard, Royal Dutch-Shell, Mexican Eagle, Agwi and The Texas Company.

August exports from Mexico totaled 2,289,580 bbls., compared with 2,761,927 bbls. in the previous month and 2,296,334 bbls. in August, last year.

Storage holdings of crude oil in Mexico on September 1 this year amounted to 17,283,315 bbls., compared with holdings of 17,321,322 bbls. on August 1 and 15,789,441 bbls. on September 1, 1929. Royal Dutch-Shell was the principal holder of stocks, with a total of 11,431,845 bbls. held by all companies of that group operating in Mexico.

For PURIFYING oil refinery gases

The purifying of oil refinery still gases, under high pressure and with high Sulphur content, has been successfully accomplished with the Koppers Liquid Purification Processes. The Illinois-Missouri Pipe Line Company plant, illustrated, has a daily capacity of 6,000,000 cu. ft. of gas per day, the gas containing 1000 Gr. of H_2S per 100 cu. ft., at 50 to 80 pounds pressure.

Complete detailed information available upon request.

THE WESTERN GAS CONSTRUCTION CO.

FORT WAYNE, IND.

Purification Plant of the Illinois-Missouri Pipe Line Company at Wood River, Ill. 6,000,000 cubic feet of Refinery Still Gas purified daily.

"WESTERN GAS" *Designs and Builds*

A. B. C. Generator Grates	Holders (Gas, Oxygen, etc.)
Naphthalene and Gasoline Absorbers	Liquid Purification Plants
Condensing Apparatus	Oxide Boxes (Purifiers)
Carburetted Water Gas Plants	Welded Steel Pipe
Blue Water Gas Plants	Tower and Rotary Scrubbers
Gas Dehydration Plants	Valves

Of Interest to Sales Departments

CARELESSNESS DESTROYS MUCH ADVERTISING WORK

By C. E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Oct. 27.—Information from various parts of the world has been filtering through to this city to the effect that advertisers of American petroleum products are suffering a loss, of which they are in ignorance, because of lax methods in the distribution of booklets, samples, etc. It is said that while the most costly and artistic labels and literature used by merchants of any nation are send abroad, American methods of packing, addressing and affixing labels are the worst known. A follow-up system of some kind is said to be needed to ascertain whether this expensive advertising reaches the persons for whom it is intended.

When President Hoover was Secretary of Commerce one of the measures of reform he took up related to the manner of distributing advertising and samples for all classes of American goods. Living in many parts of the world during 20 years he had observed numerous instances in which carelessness in advertising, stamping, placing labels on goods and crating had defeated the expected success of the advertiser.

Mr. Hoover called the attention of exporters seeking trade by various advertising methods to his observations abroad and it was believed he had effected a permanent reform by instilling into such business men the need for greater care. Now reports are coming that improperly gummed labels are dropping from cans, thus destroying their identity. Frequently deficient postage sends goods to the refuse cans or allows them to be appropriated by various persons when they are thrown aside in post offices. Poorly constructed crates are often broken up and in that way the contents are lost. Carelessness in making addresses sufficiently complete is responsible for much loss. Samples of lubricating oil and road oil have been referred to as providing many cases of ineffective advertising as a result of carelessness in one or more particulars.

SIX TANKERS ORDERED

WASHINGTON, D. C., Oct. 25.—From London comes the information that during the current year the Anglo-Persian Oil Co., Ltd., has placed contracts with British shipbuilding yards which, together with orders placed with domestic steel works and industrial concerns, will amount to about £3,500,000. These orders include six new oil tankers totaling approximately 60,000 tons.—C. E. K.

NEW CITIES SERVICE BOOKLET

NEW YORK, Oct. 25.—The oil marketing divisions of the Cities Service Co. has prepared under the supervision of its manufacturing committee an educational booklet entitled "Gasoline and Oil—Their Origin and Application to Your Car." This booklet, which presents briefly the storage of motor gasolines and lubricating oils, will be presented to motorists through the service stations operated by Cities Service marketing subsidiaries.

PREPARE FOR EXPEDITION

NEW YORK, Oct. 25.—Imperial Oil Co., Ltd., Canadian subsidiary of the Standard Oil Co. of New Jersey, is establishing a number of gasoline and lub oil storage stations in Baffin Island, Spitzbergen, and Greenland. These stations will supply the Anglo-Canadian Arctic Air Expedition, which will start in 1931.

SALESMEN CONTEST FOR GOALS AND TOUCHDOWNS

Excitement of the football field has been injected into a sales contest started by the Associated Oil Co. Touchdowns, field goals, etc., are used in the scoring system.

With Sales Manager P. E. Allan as referee and General Sales Manager B. I. Graves occupying a position much similar to that of Commissioner Judge Landis in organized baseball, the contest schedules began with the week ending October 4 and will close with the week ending November 29. Each of the company's nine coast districts constitutes a team, with distributors in southern California forming another, to make 10 in all.

A "game" consists of matching the sales effort of one team against another for a one-week period, with the schedule worked out so that each team plays each of the other teams. Leadership for each team rests with the district manager for the district the team represents. He is called the coach, and his strategy will guide his men throughout the coast conference schedule.

"You fellows have got to go out there and fight," says District Manager (Coach) Burns of San Francisco. "That Seattle bunch we are playing this week is out to lick us. Watch your ends for delayed passes and do not let any line bucks get through you or I will put in my second string to show you up."

Points are awarded on a carefully worked out basis of sales potentialities and values:

Securing new pump, a touchdown, six points; sale of Cycol, field goal, three points; sale of Veedol, field goal, three points; Burnbrite kerosene, conversion, one point, and Associated Stoddard solvent, conversion, one point.

Weekly scores are forwarded to the referee and the teams are advised after each week just where they stand in the conference schedule. Awards have been set up for the conference winner—the team that wins the greatest number of games or, in case of tie, the one with the greatest number of sales points.

Each district office has been supplied with miniature goal posts. The winning team receives the small model football of the team it beat, to hang on its goal and there is said to be sharp rivalry in wresting these prizes from opposing districts. At the end of the conference schedule, 11 individuals with highest individual scores will be chosen as the "All Associated Eleven."

ALCOHOL RAISES PRICE

WASHINGTON, D. C., Oct. 27.—The policy of encouraging domestic industry in France by requiring oil companies to mix a given amount of alcohol with gasoline sold as motor fuel is bringing on conditions that were not contemplated when this policy was first discussed. It is now evident that the higher price of state alcohol that went into effect on October 1 is causing an increased price in sales of gasoline. It is thought gasoline may be increased 15 francs per hectoliter as a consequence of the increase in the price of alcohol.—C. E. K.

INVENT HIGH-SPEED DIESELS

NEW YORK, Oct. 25.—Following years of experimental work, two British companies, both affiliated with Agricultural & General Engineers, Ltd., have succeeded in developing a high-speed Diesel engine for tractors. The new engine, a 4-cylinder motor, is now being manufactured in commercial quantities at plants at Stamford and Rochester, England, it is reported.

NAVY DEPARTMENT ASKS BIDS FOR BUNKER OIL

WASHINGTON, D. C., Oct. 27.—Bids for fuel bunker oil have been invited by the Navy Department. For Gulf ports 650,000 bbls. is required in cargo lots of about 30,000 to 75,000 bbls., the grade to be Bunker "A." Also at the same ports the Navy calls for 60,000 bbls. of Bunker "C" oil. For delivery at New London, Conn., 35,000 bbls. of Bunker "A" grade is required. Bids will be opened at the Navy Department November 14.

The Navy also calls for 1,200 pounds of rust preventive compound, 280 gallons of soluble oil, 1,020 gallons of mineral lard oil, 1,920 pounds of paraffin wax, and 5,760 pounds of petrolatum, bids to be opened November 14.—C. E. K.

TEST SUIT BEGAN

CHICAGO, Oct. 27.—To secure a final decision on the question if gasoline sold to a municipality is taxable or not under the Illinois gasoline tax law, the State's legal department has brought a test suit against the Deep Rock Oil Corp., to have the debatable matter settled. The suit was brought before the State Supreme Court at Springfield and the amount claimed as due to the State from the sale of gasoline to the city of Chicago is $62,872. An opinion has been rendered by the United States Department of Justice which stated that gasoline sold to the United States was free of gasoline taxes and it has been assumed that gasoline sold to the various states or to the municipalities within the state, were also free from tax. The amount of the tax if collected would be very considerable and a definite decision is sought.

LAST BOAT OF SEASON

MUSKEGON, Mich., Oct. 27.—The Standard Oil Co. of Indiana barge "C" will arrive in the Muskegon harbor about November 20 for the last boatload of the season and will remain here as long as possible to exhaust all storage space of the company in the Muskegon Field. As much of the oil as possible will be stored during the winter months, according to R. G. Bechtel, field superintendent of the Dixie Oil Co.

As daily crude runs of the Dixie Pipe Line Co. in the Muskegon Field are now averaging about 800 bbls. and the company has more than 80,000 bbls. storage space it is expected that it will be possible to store the entire production for at least three months before it will be necessary to ship any by rail. About 1,500 bbls. a day is being run by two refineries operating in the field making a total daily production of between 2,000 and 2,500 bbls. for the field.

STATE SECTION ORGANIZED

Organization of the Maryland-District of Columbia section, division of marketing of the American Petroleum Institute, has been approved by the general committee of the division. It is the first state section to be organized under the recently adopted divisional organization and automatically takes over the work heretofore done by the Maryland-District of Columbia code committee. In addition the state section may hold open meetings for the discussion of marketing problems and make recommendations to the general committee of the division.

Peyton S. Cochran, of the Sun Oil Co., Baltimore, Md., has been chairman of the code committee. While ordinarily section organizations are confined to one state, the District of Columbia is included in this section because of its connection with the code committee.

CITIES SERVICE OIL CO. ACQUIRES CITEX WHARVES

NEW YORK, Oct. 26.—Cities Service Oil Co., Ltd., of England, has acquired Citex Oil Wharves, Ltd. The works of Citex Oil Wharves cover a large area on the south bank of the river Humber in Lincolnshire, and are advantageously located for the delivery of Cities Service products to depots in the manufacturing areas of the Midlands, Yorkshire and Lancashire and the Northeast Coast area, while serving all other areas in the eastern side of England north of the river Thames.

Water facilities at the Citex Wharves are sufficient to permit tankers up to 12,000 tons cargo capacity to dock and pipe lines are arranged to enable incoming cargoes to be pumped direct to the main storage tanks, which have more than 6,000,000 gallons capacity.

The storage tanks are erected on earth bunds or dikes and are fitted with independent pipe lines which prevent contamination of the various grades stored. Steam boilers have been erected capable of supplying ships with steam while discharging their cargoes, no fires being permitted upon vessels while this operation is in progress. The quantity of steam required depends upon the type of pump fitted on board the tanker. Many ships have pumps which are capable of handling 200 to 300 tons of gasoline an hour (200 tons being equivalent to 60,000 gallons), a rate of discharge of 1,000 gallons a minute.

Other pumps are used to transfer oil from the various main storage tanks to large tanks erected upon a steel platform some 15 feet above the ground, where it runs by gravity to road tank wagons on one side or to rail tank cars on a private siding, which has direct connection with main line railways. Operations at the Citex Wharves have been carried out under the direction of R. L. Green, chief engineer of the Cities Service Oil Co., Ltd.

FAST OIL ELECTRIC TRAIN

NEW YORK, Oct. 27.—The Erie Railroad has received delivery from the Westinghouse Electric & Manufacturing Co. of the first twin-six oil-electric railway car constructed in this country. The car was run from its own power from the Westinghouse works in East Pittsburgh to Youngstown, Ohio, and has been placed in service between Youngstown and Dayton by the Erie.

The twin-six car has a maximum speed of 85 miles an hour and a "cruising" speed of 70 miles. It can maintain a speed of 50 miles per hour with four 40-ton trailers, and will run 1,000 miles with one fueling. The car has two Diesel engines instead of the one ordinarily used in cars of this type.

GASOLINE TAX RECEIPTS LESS

CHICAGO, Oct. 27.—The tax payments on gasoline in Michigan which are collected on cars received, show the sudden change which came over the industry at the beginning of May. For January the tax receipts showed a gain of nearly 10 per cent which increased month by month until the April receipts were 40 per cent ahead of last year. In May there was a sudden drop to an increase of 8.89 per cent. June showed a decrease of 4.72 per cent and July a decrease of 1.23 per cent. It was this sudden decline in demand as indicated by the receipts which completely upset the industry by making it necessary for the refiners to force the sale of their surplus which they had run expecting that the demand would continue over the touring season.

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COASTAL AND PARAFFINE CRUDES—
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NAPHTHA—GAS—OILS—
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CYLINDER—ENGINE—CORDAGE

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Providence, R. I.
New York Harbor (Bayonne, N. J.)

Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)

Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.

New Orleans (Gretna, La.)
Port Arthur, Texas.
Galveston, Texas.

HEADLEY EMULSIFIED ASPHALTS

the latest technical achievement for

PIPE LINE PROTECTION

HEADLEY Emulsified Asphalts consist of selected grades of straight steam-distilled Mexican asphalt in emulsified form. In the process of manufacture, the asphalt is finely dispersed, all of the minute particles being individually enclosed within a soapy film which prevents them from coalescing or sticking together when in emulsion form. The asphalt particles are completely and uniformly dispersed and remain so until the emulsion is applied.

Shipped in tank car lots, 50 to 55-gal. or 30 to 33-gal. steel drums and 5-gal. steel pails.

On application, the film of soapy solution enclosing each asphalt particle quickly breaks, due to physicochemical changes and evaporation of the water, and the asphalt particles then unite to form a uniform continuous coating of pure asphalt, thus assuring perfect bond and permanent protection.

Advantages for the protection of exposed or buried metal pipe.

High quality and quantity of straight steam-distilled Mexican asphalt (70% Asphalt content by weight).

Small amount and advantageous nature of the soap-type emulsifier.

Low water content (Not over 30% by weight).

Cold application (at temperature above 35° F.) by flowing, spraying, or brushing. No heating kettle, skilled workmanship or tedious mopping required.

Perfect bond to any clean surface, wet or moist, assuring complete protection.

Not injured by freezing.

Used alone for film coating, or in conjunction with fabric for built-up protection.

Freedom from mineral suspending agents and inert fillers. No ingredient impairs ductility, bonding or imperviousness of the finished coating.

Useful properties fully retained. No beneficial physical properties of the asphalt are impaired or permanently lost as when asphalt is dissolved by a "cut-back" process, or mixed with fillers that have no protective qualities.

Not "reversible" after thoroughly drying.

Very stable. Long storage produces no appreciable sedimentation or separation.

No flammable fumes. No dangerous solvents to evaporate and create fire hazard.

Efficient and permanent. Apply uniformly, set readily, dry in a few hours and thereafter thoroughly resistant to temperature changes, fresh and salt water, moisture, acids, alkalies, chemical fumes, electrolytic action, etc. The finished coating remains continuous, elastic and will not crack, creep or flow under ordinary exposure.

MAIL THE COUPON FOR LITERATURE

Bulletin 330 and Specifications covering standard applications will be mailed on request, and our Research and Development Department will co-operate in connection with new or exceptional uses.

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REG. U. S. PAT. OFF.

Please send Bulletin 330 and free sample of Headley Emulsified Asphalt.

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Company _____

Address _____
C.M.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

GARVIN COUNTY

Nelson et al's No. 1 Strickland, NE NW Sec. 10-4-3w ..Shut down 2,652 ft.

GREER COUNTY

French's No. 1 Murphy, SW NW SE Sec. 23-7-21w .....Drlg. 500 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w .....Shut down 2,507 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w..Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w .....Drlg. 7,173 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w .....20,000,000 ft. gas 5,350-5,400 ft.; total depth 5,539 ft.; shut down; sprayed 50 bbls. gasoline; S. D.

HASKELL COUNTY

I. T. I. O.'s No. 1 Blake, SW NW Sec. 3-10-21 .....Shut down 1,700 ft.
Mid-Western's No. 1 Poister, C NE SE Sec. 33-10-22 ....Shut down 4,230 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e .....Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e ..Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e..Shut down 3,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 .....Shut down 1,645 ft.
Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 ....1,000,000 ft. gas 2,284 ft.; shut down 4,515 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 .....Shut down 4,270 ft.; cmtd. 6-in. csg.

KAY COUNTY

Blackwell Oil & Gas Co.'s No. 1 Harshman, Sec. 2-26-1w..Rig on ground.
Boucher Oil Co.'s No. 1 Jefferson, NE SW Sec. 32-26-1w .....Shut down 1,175 ft.
Alco Royalty Co.'s No. 1 Wolf, SE SW SE Sec. 34-26-2w..5,000,000 ft. gas 4,890-4,420 ft.; shut down.
Blankinship Petroleum Co.'s No. 1 Hansen, SW NW SW Sec. 17-27-2 .....Sand 3,590-97 ft.; swabbed 34 bbls. after 40-qt. shot; flowed 34 bbls. and shut down; pumping 30 bbls.

KINGFISHER COUNTY

Prairie and Slick's No. 1 Wright, C NW SW Sec. 23-15-5w .....Drlg. 5,700 ft.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w .....Drlg. 6,600 ft.

KIOWA COUNTY

Riley et al's No. 1 Grebb, SW NE Sec. 6-7-16w .....Shut down 1,090 ft.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24...Wilcox 6,123-6,298 ft.; plugged back to 5,426 ft.

LATTIMER COUNTY

LeFlore Oil Co.'s No. 1 McBee, NW cor. Sec. 3-7-21 ....Shut down 3,601 ft.
Mid-Western's No. 1 Morris, C NW SE Sec. 12-6-21 ....Shut down 1,562-1,650 ft.; dry; total depth 2,005 ft.
Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-13 .....Drlg. 2,523 ft.

LINCOLN COUNTY

Atlantic Oil Prod. Co.'s No. 1 Parker, SE NW Sec. 5-14-6 .....Wilcox 4,595-98 ft.; dry; second Wilcox 4,655-75 ft.; hole full water; shut down.

LOGAN COUNTY

Slick and Ramsey's No. 1 Jones, SE NW Sec. 24-17-2w ..Drlg. 5,168 ft.
Prairie and Slick's No. 1 Morgan, NW NE Sec. 33-16-1w .....Drlg. Wilcox 5,773-95 ft.; water; abandoned.
Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w.Sand 4,919-42 ft.; made 870 bbls. 21 hrs.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 .....Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

McCLAIN COUNTY

Prairie's No. 1 Parkinson, SW NW Sec. 22-7-2w .....Drlg. 3,400 ft.

MUSKOGEE COUNTY

Mathers' No. 1 Springer, SW NE Sec. 5-11-19 .....Drlg. 960-75 ft.; water; abandoned.
Gillespie's No. 1 Shepard, C SW SW Sec. 35-12-19 .....Abandoned 703 ft.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 ....Shut down 1,011 ft.

NOBLE COUNTY

Barnsdall's No. 1 Miksch, NW SW Sec. 12-21-1 .....Drlg. 2,030 ft.
Weaver & Craigin's No. 1 Frederick, C SW NE Sec. 4-24-1w .....Shut down 2,660 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 .....Shut down 4,127-57 ft.; water.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 .....Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 ..Shut down 3,690 ft.

OKLAHOMA COUNTY

L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w .....Shut down 5,515 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w .....Wilcox 6,697-6,771 ft.; shot with 90 qts. and 140 qts.; flowed 452 bbls.
Prairie and Slick's No. 1 Dill, SE NW Sec. 17-13-3w ....Shut down 6,821 ft.; P. B. to 6,530 ft.; bailed water ripped csg. 5,810-40 ft.; no show; pulling casing.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w .....Cleaning out 6,440 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w .....Shut down 6,700 ft.
Magnolia and Ramsey's No. 1 Johnson, C NE SW Sec. 35-13-3w .....T. D. 7,212 ft.; P. B. to 6,280 ft.; abandoned.
Ryan Consolidated's No. 1 Lawton, NE NW Sec. 3-11-2w..Shut down 6,903 ft.; plugged back to 6,319 ft.; shot 40 qts.; no show; pulling casing.

PAWNEE COUNTY

Morgan & Flynn's No. 1 Freeman, NW cor. Sec. 1-20-5 Drlg. 3,110 ft.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 .....Rig.
L. E. Wentz' No. 1 G. Lilly, SE SW NE Sec. 26-22-3 ....Drlg. 2,630 ft.
Flynn & Morgan's No. 1 Jones, SW NE Sec. 22-20-5 ....Wilcox 3,794-3,824 ft.; water; shut down.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 ....Rig.

PITTSBURG COUNTY

Apex et al's No. 1 Walker, NW SE Sec. 18-7-13 .....Drlg. 1,455 ft.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 .....Rig.

POTTAWATOMIE COUNTY

The Texas Company's No. 1 Knight, SW SE Sec. 3-8-3 ..Drlg. 5,370 ft.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w ....Shut down 2,245 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w ....Shut down 2,905 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 .....Location.

WASHITA COUNTY

Petroleum Holdings, Inc.'s No. 1 Music, NW cor. Sec. 19-9-20w .....Shut down 280 ft.

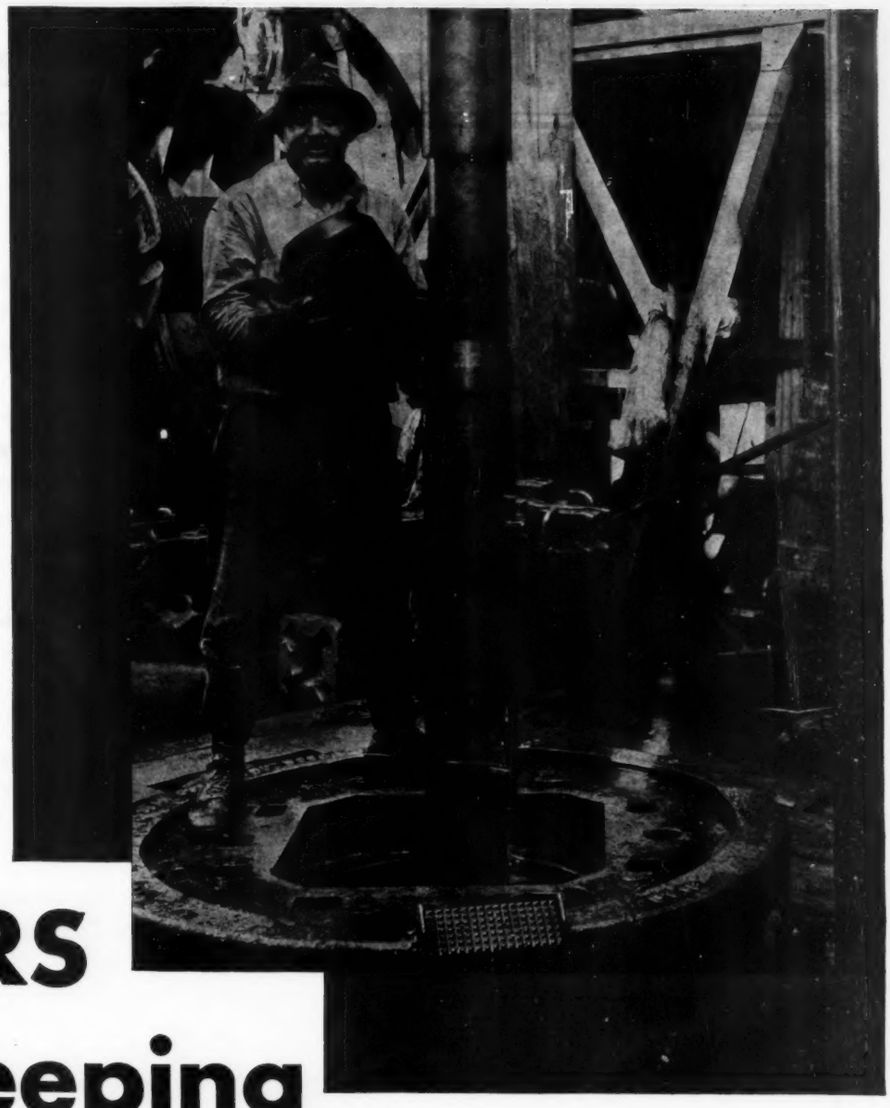
WOODS COUNTY

Gypsy-Prairie et al's No. 1 Thompson, SE cor. SW Sec. 10-25-15w .....Shut down 6,104 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 33-27-16w .....T. D. 7,280 ft.; plugged back to 6,730 ft.; shot 30 qts. 6,805-25 ft.; no results.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w .....Shut down 1,387 ft.
Prairie Oil & Gas Co. et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w .....Shut down 7,445 ft.

(Continued on Next Page)



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OKLAHOMA PANHANDLE

CIMARRON COUNTY

Magnolia's No. 1 School Land, C SW NE Sec. 27-5-5 ....Drlg. 4,740 ft.

TEXAS COUNTY

Argus Prod. Co.'s No. 1 Fischer, C NW Sec. 29-6-14 .....Location.
Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-18 .....Shut down 4,425 ft.
Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e .....Spudded; shut down.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE NE Sec. 18-3s-10 .....Shut down 100 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10..Shut down 425 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 .....Shut down 525 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e...Shut down 485 ft.
Marshall's No. 2 fee, C SW NW Sec. 26-5s-7 .....Shut down; 6-in. csg. 265 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 .....Drlg. by casing 2,590 ft.

COTTON COUNTY

H. J. Dillard's No. 1 McMillan, SE NW Sec. 2-4s-13w ....Shut down 2,705 ft.

LOVE COUNTY

Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w ..Shut down 3,130 ft.

MARSHALL COUNTY

Goddard Oil Co.'s No. 1 Marshall, CSL SE NW Sec. 8-6s-6 .....Drlg. 610 ft.
D. H. Curry's No. 1 Ward, NE SW Sec. 15-5s-6 .....Drlg. 70 ft.
Keiner Oil's No. 1 Barnard, NW NE SW Sec. 28-5s-6e ....Drlg. 720 ft.
McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 ..Rig.
Akers et al's No. 1 Spicer, SW SE SE Sec. 33-5s-7e ....Shut down 370 ft.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 .....Shut down 2,287 ft.

STEPHENS COUNTY

Obermyer et al's No. 1 Skelton, NE SW SW Sec. 32-15-7w .....Drlg. 1,120 ft.
R. Southard's No. 1 McKinney, NE cor. Sec. 25-1-8n ....Shut down 1,060 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

FORD COUNTY

Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w .....Drlg. 4,200 ft.

GOVE COUNTY

Johnson and Atlantic's No. 1 Wright, SE NE Sec. 11-12-27w .....Drlg. 1,670 ft.
Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w .....Drlg. 4,460-65 ft.; show water; underreaming 6-in. csg.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w Shut down 4,370 ft.

GRANT COUNTY

McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w..Shut down 50 ft.

GREENWOOD COUNTY

Staats et al's No. 1 Swan, NE NW Sec. 3-25-12 .....Rig.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12..Shut down 1,836 ft.

HARPER COUNTY

Atkinson et al's No. 1 Misak, SE cor. Sec. 25-34-6w .....Drlg. 4,340 ft.
Beeler et al's No. 1 Bear, C NE Sec. 21-31-6w .....Shut down 1,830 ft.

KINGMAN COUNTY

Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w .....1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; shut down.

KIOWA COUNTY

Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w ....Drlg. 4,492 ft.
McKenna et al's No. 1 Ralson, C NE Sec. 14-28-20w ....Rig.

LYONS COUNTY

Griffith et al's No. 1 King, NW cor. Sec. 8-19-10 .....Shut down 910 ft.

MARION COUNTY

Aladdin Pet.'s No. 1 Koch, NW NE Sec. 36-17-3 .....Rig.
Midwell's No. 1 La Master, NW cor. Sec. 31-22-4 .....Rig on ground.
Magnolia Pet. Co.'s No. 1 Davis, SE NW Sec. 18-21-2 ....Drlg. 3,360 ft.
Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 ...Rig.

MARSHALL COUNTY

Swicker & Sincox's No. 1 Remple, C N half NW Sec. 22-4-9 .....Shut down 1,245 ft.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 .....Shut down 50 ft.

McPHERSON COUNTY

Henderson & Holden's No. 1 Sommerfield, NE SW Sec. 23-19-1w .....Location.
Aladdin Pet.'s No. 1 Rudolph, NW NE Sec. 36-18-3w.. .Rig.
McPherson Oil Co.'s No. 1 Kuns, SE SW Sec. 11-20-5w ..Shut down 1,400 ft.
Slick et al's No. 1 Randell, C SW SW Sec. 35-17-5w ....Rig.
Aladdin Pet. Co.'s No. 1 Larson, C NW Sec. 22-18-4w ....Rig on ground.

MORTON COUNTY

Argus Prod. Co.'s No. 1 Plummers, C NE Sec. 11-29-41w .....Drlg. 2,885 ft.
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-24-43w .....Shut down 3,200 ft.

MORRIS COUNTY

Urschell et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7..Machine.
Pratt et al's No. 1 Whiting, NW SW SW Sec. 34-16-6 ..Drlg. 2,180 ft.
Hankenson et al's No. 1 Cessman, SW SE Sec. 24-16-9 ..Rig.
Urschell et al's No 1 Scott, NE NW Sec. 6-16-6 .....Cleaning out 2,420 ft.

OSAGE COUNTY

Riggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 ....Shut down 410 ft.

PAWNEE COUNTY

Phillips' No. 1 Cuthbertson, NE cor. Sec. 27-20-8w .....Drlg. 2,170 ft.

PRATT COUNTY

Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w .....Fishing 4,353-95 ft.; water.

RAWLINS COUNTY

Danciger Oil & Ref.'s No. 1 Unknown, SW cor. Sec. 3-2-35w .....Rig.

RENO COUNTY

Braden et al's No. 1 Thersen, SE NE Sec. 6-22-4w .....Drlg. 2,790 ft.
Alco Royalty's No. 1 Kinney, SE cor. Sec. 16-22-7w .....Drlg. 3,280 ft.
Shell Pet. Corp.'s No. 1 Popp, NW cor. Sec. 11-25-5w ....Chat 3,496-99 ft.; shut down.
C. A. Cheney and M. M. Valerius' No. 1 Stevens, C NE SE NE Sec. 6-26-7w .....Simpson 4,196-4,266 ft.; water; abandoned.

RICE COUNTY

Muth Bros.' No. 1 Beyers, NE NW Sec. 21-19-9w .....Rig on ground.
Jasper & Beschka's No. 1 Cupp, SW NE Sec. 22-18-9w ..Drlg. 2,010-20 ft.; 7,500,000 ft. gas; shut down.
United Pet. Co.'s No. 1 Willman, NE cor. Sec. 29-21-9w ..Drlg. 2,720 ft.
Tatlock et al's No. 1 Ploog, C SW SE Sec. 33-18-9w ....Silicious lime 3,252-53 ft.; flowing 30 bbls. an hr. when shut in.

ROOKS COUNTY

Streeter-Stearns' No. 1 Conger, SE NW NE Sec. 16-10-16w .....Shut down 2,615 ft.

RUSH COUNTY

Prairie et al's No. 1 Lecker, NW SW SW Sec. 5-16-18w ..Drlg. 3,550 ft.; show oil at 3,337-50 ft. which exhausted; drlg. 3,660 ft.
Syndicate Oil Co.'s No. 1 Lannen, C SW Sec. 11-18-16w ..Rig.

RUSSELL COUNTY

Empire Oil & Ref. Co.'s No. 1 Sherwood, SE NW NW Sec. 21-14-13w .....Drlg. 1,680 ft.
Austin Drlg. Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w .....Shut down 2,710 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 32-11-13w ....Shut down 2,155 ft.

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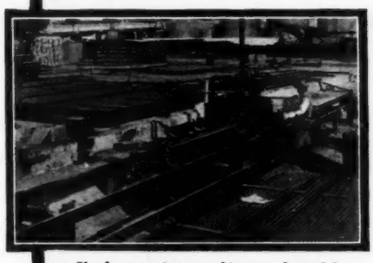
Booklet Describes Advantages of Mechanical Wrapping *for Your Job!*



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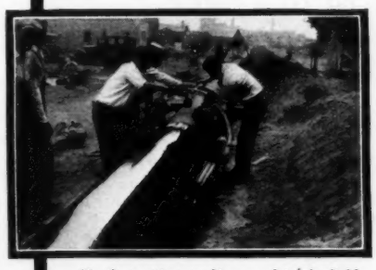
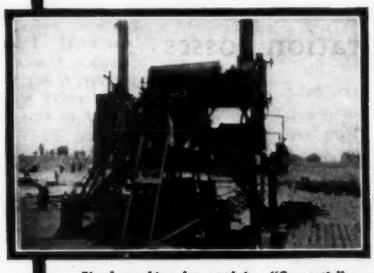


Hand wrapping machine, used in the field to apply Osnaburg wrap or asbestos pipe line felt.



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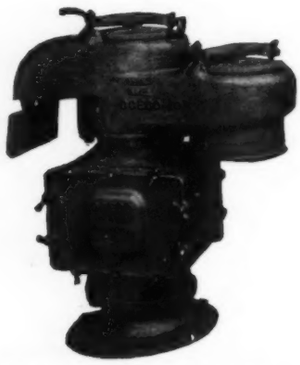
OCECO Tank Fittings are designed by men of practical oil field experience, tested by Underwriters' Laboratories, Inc., proven by years of actual experience, and endorsed by leading oil companies throughout the world.

An OCECO engineer is always available for consultation on your particular needs.



OCECO Vent Unit consisting of double flange vent collar, flame arrestor, flame snuffer, and conservation vent valve with vacuum and pressure relief valves.

OCECO Gauge and Thief Hatches contain no liquid seals or gaskets—yet they're gas-tight, water-tight, and spark-proof. Self-closing, foot-operated cover.

OCECO Look Boxes allow light to enter from all sides, permitting an unobstructed view of the stream. Cylindrical Pyrex glass eliminates breakage due to temperature strains.

OCECO Cable Sheave Brackets (for use with OCECO Safety Tank Winch) make possible the operation of swing lines from the ground. Cable passes through a gas-tight stuffing box to eliminate fire hazard and reduce evaporation.

THE OIL CONSERVATION ENGINEERING CO.

877 ADDISON ROAD CLEVELAND, OHIO

Engineering and Sales Service:

90 West Street, New York Tulsa Trust Bldg., Tulsa, Okla.

Box 552, Beaumont, Texas

SEDGWICK COUNTY

Streeter & Stearn's No. 1 Tobin, SW SE NE Sec. 5-22-2..Rig.
Branson et al's No. 1 Kincaid, SE NW NW Sec. 4-28-1...Shut down 50 ft.
Buck et al's No. 1 McNananan, NE NW NW Sec. 2-29-1..Rig.

SALINE COUNTY

Sampson et al's No. 1 Sudenderf, NE SE Sec. 30-14-2w ..Location.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w .....Shut down 2,155 ft.

STAFFORD COUNTY

Boucher Oil's No. 1 Groves, NE cor. Sec. 9-22-11w .....Drlg. 3,550 ft.
Midwest's No. 36 Richardson, SE cor. Sec. 36-22-12w ....Sand 3,542-99 ft.; swabbed 75 bbls. 17½ hrs.; shut down for tankage.

STEVENS COUNTY

Western Prod. Co.'s No. 1 Ponder, C NE Sec. 10-32-38w..Drlg. 2,210 ft.
Western Prod. Co.'s No. 4 Fee, C NE Sec. 6-33-36w .....Drlg. 1,550 f..
Braden et al's No. 1 Theisen, SE NE Sec. 6-22-4w .....Rig on ground.
Mangle et al's No. 1 Youngren, C SE NW Sec. 24-32-39w .....Shut down 2,523 ft.
McNabb and Mid-Kansas' No. 1 Rhinehart, C NE Sec. 23-32-39w .....Rig.

SEWARD COUNTY

Liberal Gas' No. 1 C N half NE Sec. 4-35-34w .....Drlg. 2,080 ft.

SUMNER COUNTY

Magnolia Pet. Co.'s No. 1 Shriver, NW SW Sec. 9-33-2 ..Drlg. 3,365 ft.
Disney et al's No. 1 Fay, C E half SE Sec. 14-34-1w ....Rig.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 13-35-1w .....Rig.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-2-3 ....Underreaming 6-in. csg. 1,210 ft.

ENORMOUS POTENTIAL PRODUCTION OF WELLS IN HOBBS, N. MEX., POOL

Crediting the Hobbs Pool in eastern Lea County, New Mexico, with a potential production of 819,193 bbls. per day as of October 16, the proration committee and Umpire C. G. Staley placed the allowable production of the pool at an average of 31,715 bbls. for the remainder of October. The umpire's statement includes a table showing the potential and the allowable production per well in the field as follows:

Company and lease—	Location	Daily potential prod. (bbls.)	Daily allow. prod. (bbls.)
Amerada Petroleum Corp:			
No. 1 McKinley	30-18s-38e	8,294	320
No. 2 McKinley	30-18s-38e	15,552	526
No. 3 McKinley	30-18s-38e	14,839	506
No. 4 McKinley	30-18s-38e	7,517	296
No. 1 State "A"	32-18s-38e	22,550	726
No. 2 State "A"	32-18s-38e	2,657	158
No. 1 State "B"	29-18s-38e	9,137	343
No. 2 State "B"	29-18s-38e	1,782	133
Total 8 wells		82,328	3,008
Atlantic Oil Producing Co.:			
No. 1 Bradley	6-19s-38e	5,378	235
Continental Oil Co.:			
No. 1 State "A"	29-18s-38e	17,820	591
No. 2 State "A"	29-18s-38e	3,013	168
No. 3 State "A"	29-18s-38e	25,531	811
No. 1 State "B"	33-18s-38e	3,365	149
No. 2 State "B"	33-18s-38e	2,203	145
No. 3 State "B"	33-18s-38e	16,718	559
Total 6 wells		67,650	2,423
Empire Gas & Fuel Co.:			
No. 1 Fowler	31-18s-38e	12,442	437
No. 2 Fowler	31-18s-38e	1,814	134
No. 1 Hardin	19-18s-38e	12,312	434
No. 2 Hardin	19-18s-38e	5,702	245
Total 4 wells		32,270	1,250
Getty Oil Co.:			
No. 1 McKinley	30-18s-38e	12,182	430
No. 2 McKinley	30-18s-38e	20,023	655
No. 4 McKinley	30-18s-38e	12,701	445
Total 3 wells		44,906	1,530
Gypsy Oil Co.:			
No. 1 Grimes	32-18s-38e	16,654	557
No. 2 Grimes	32-18s-38e	20,153	658
No. 3 Grimes	32-18s-38e	24,240	774
No. 4 Grimes	32-18s-38e	8,165	315
No. 5 Grimes	32-18s-38e	5,378	236
No. 6 Grimes	32-18s-38e	9,493	354
No. 1 Graham	24-18s-37e	6,091	256
Total 7 wells		90,174	3,150
Humble Oil & Refining Co.:			
Nos. 1 and 5 Bowers	30-18s-38e	13,608	471
No. 2 Bowers	30-18s-38e	6,350	264
No. 3 Bowers	29-18s-38e	15,422	522
No. 4 Bowers	30-18s-38e	15,228	517
No. 8 Bowers	30-18s-38e	2,981	167
No. 9 Bowers	29-18s-38e	16,423	551
No. 1 Grimes	29-18s-38e	7,128	286
Total 8 wells		77,140	2,778
Landreth Production Corp.-Texas Unity Oil Co.:			
No. 1 State	33-18s-38e	4,018	197
No. 2 State	33-18s-38e	4,795	219
Total 2 wells		8,813	416
Midwest Refining Co.:			
No. 31 Capps	3-19s-38e	1,096	113
No. 24 Leach	15-19s-38e	756	104
No. 8 State	9-19s-38e	724	103
Nos. 1 and 13 State	15-19s-38e	2,738	160
No. 8 State	10-19s-38e	1,042	112
Nos. 24 and 36 State	10-19s-38e	777	104
No. 13 Terry	10-19s-38e	994	110
No. 26 Terry	9-19s-38e	826	105
No. 33 Byers	4-19s-38e	17,399	580
No. 3 State	4-19s-38e	2,300	148
No. 4 State	4-19s-38e	2,365	149
No. 8 State	4-19s-38e	23,458	752
No. 26 State	4-19s-38e	1,328	120
No. 26 State	4-19s-38e	2,268	146
No. 33 State	4-19s-38e	5,864	250
No. 6 McKinley	5-19s-38e	2,203	145
Total 18 wells		66,138	3,201
Ohio Oil Co.:			
No. 1 State	30-18s-38e	9,590	356
No. 2 State	30-18s-38e	4,504	210
No. 3 State	30-18s-38e	7,128	286
No. 1 State	9-19s-38e	.....	20
Nos. 1 and 4 State-Northup	32-18s-38e	15,098	514
No. 2 State-Independent	32-18s-38e	5,508	239

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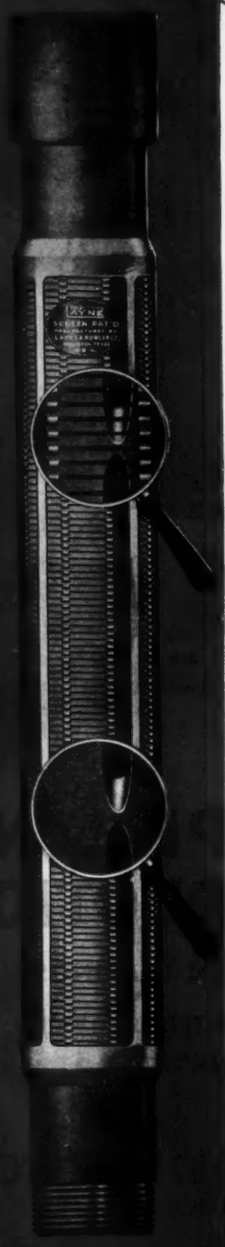

'Used 'ROUND THE WORLD by LARGE and IMPORTANT oil Companies

THE LAYNE

MILLED GROOVE screen

Milled Groove Screen's remarkable ability to safely stand 8,000 feet of drill pipe, to increase production from 33-1/3% to 100%, to stimulate low pressure wells, to avoid clogging with mud and sand, and to prevent sand cutting are reasons why this exclusive invention is used 'round the world by large and important oil companies.

The *Layne Milled Groove Screen* is oil industry's greatest and most important development and is the culmination of more than a quarter century's experience in building screens and the solving of screening problems.

Install the "greater production" *Milled Groove Screen* instead of wishing you had.

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Install Milled Groove Instead of Wishing You Had

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FORCE FEED LUBRICATION WITH FILTERED OIL

PORTABLE COMPRESSOR

24 of these compressors are in use by one pipe line contractor.

For PIPE LINE CONSTRUCTION

THREE MAIN BEARINGS

FULLY COUNTERBALANCED CRANKSHAFT

GARDNER-DENVER COMPANY
QUINCY, ILLINOIS
Oil Field Branches in all Principal Cities

GARDNER-DENVER

Company and lease—	Location	Daily potential prod. (bbls.)	Daily allow. prod. (bbls.)
No. 3 State-Independent	32-18s-38e	21,060	685
No. 5 State-Northup	32-18s-38e	7,096	285
Total 9 well's		69,984	3,595
Prairie Oil & Gas Co.:			
Nos. 1 and 2 Crump	15-19s-38e	2,872	165
No. 1 Selman	15-19s-38e	462	95
No. 1 Grimes	28-18s-38e	8,845	335
Total 4 wells		12,179	595
Shell Petroleum Corp.:			
No. 1 McKinley "A"	19-18s-38e	11,664	415
No. 2 McKinley "A"	19-18s-38e	11,470	410
No. 4 McKinley "A"	19-18s-38e	5,378	236
No. 5 McKinley "A"	19-18s-38e	4,471	209
No. 6 McKinley "A"	19-18s-38e	11,016	397
No. 7 McKinley "A"	19-18s-38e	7,193	287
No. 1 McKinley "B"	20-18s-38e	8,489	324
No. 2 McKinley "B"	20-18s-38e	23,911	765
Nos. 1, 2 and 4 State "A"	32-18s-38e	11,797	416
No. 3 State "A"	32-18s-38e	3,823	191
No. 1 State "B"	33-18s-38e	3,960	195
No. 1 Thorp	10-19s-38e	1,426	124
No. 1 Berry	31-18s-38e	2,592	156
No. 1 Grimes	28-18s-38e	6,156	258
No. 2 Grimes	28-18s-38e	17,917	595
Total 16 wells		131,173	4,978
Skelly Oil Co.:			
No. 1 Bowler	31-18s-38e	9,720	359
Sun Oil Co.:			
No. 1 McKinley	5-19s-38e	11,146	400
No. 1 McKinley	5-19s-38e	4,406	208
Total 2 wells		15,552	608
The California Co.:			
No. 1 State	29-18s-38e	4,126	200
No. 2 State	29-18s-38e	18,792	619
No. 1 McKinley	20-18s-38e	7,452	295
Total 3 wells		30,370	1,114
The Texas Company:			
No. 1 Selman	15-19s-38e	120	35
No. 1 State "C"	25-18s-37e	6,286	262
No. 2 State "C"	25-18s-37e	9,933	366
No. 1 McKinley	4-19s-38e	6,055	255
No. 2 McKinley	5-19s-38e	9,817	362
No. 3 McKinley	4-19s-38e	6,350	264
Total 6 wells		38,561	1,594
Texas Pacific Coal & Oil Co.:			
No. 1 State "G"	24-18s-37e	8,618	328
Tidal Oil Co.:			
Nos. 1 and 3 Grimes	29-18s-38e	18,633	615
No. 2 Grimes	29-18s-38e	1,960	138
No. 1 Hardin	19-18s-38e	7,646	300
Total 4 wells		28,239	1,053
Walker Oil Corp.:			
No. 1 Terry	10-19s-38e	.....	500
Grand total 106 wells		819,193	31,715

ESTIMATE PIPE LINE CORROSION COSTS $100,000,000 ANNUALLY

Business interests are giving tangible co-operation in the Bureau of Standards' efforts to find ways of preventing corrosive damage to pipe lines, according to a statement by K. H. Logan, electrical engineer in charge of the bureau's underground corrosion section.

There are buried in the United States more than 300,000 miles of pipe lines on which the loss by corrosion has been estimated as approximately $100,000,000 annually. Much of this loss can be prevented by the proper selection of pipe materials and the application of suitable protection to the lines in corrosive soils. The purpose of the Bureau of Standards underground corrosion section is to co-operate with the owners of underground utilities such as water, gas and oil lines in the reduction of these losses caused by corrosion.

With the assistance of public utility organizations, the Bureau of Standards is undertaking to determine the causes of underground corrosion, methods of identifying corrosive soils, the characteristics which a satisfactory pipe coating must have, and methods for ascertaining whether a coating is suitable for a given soil condition.

The extent of the co-operation which "Standards" is receiving in this work is, in a way, a measure of the importance of the corrosion problem and the need for its solution. Three national organizations are paying the salaries and expenses of men stationed at the Bureau to assist in corrosion studies.

In 100 Locations

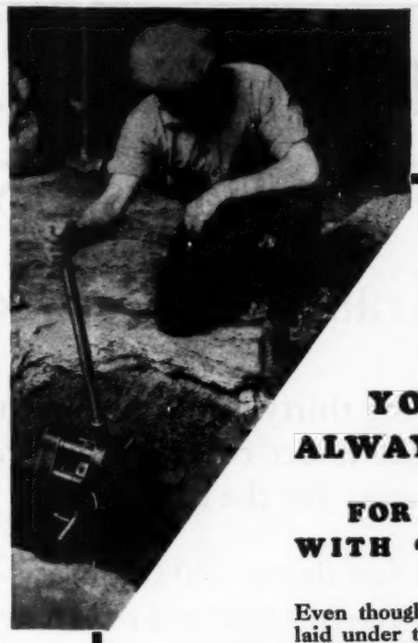
In each of the 100 locations where field tests are being conducted local public utility companies furnish the test plots and the labor for burying and removing specimens. In addition 50 manufacturers co-operate by furnishing considerable quantities of their materials for the test.

Nearly 20,000 specimens of materials, comprising several kinds of iron, steel, brass and copper pipe, a variety of alloys intended for service under special conditions, and a large number of metallic and organic coatings are under observation. Tests are being conducted in nearly all parts of the United States where pipes are extensively used. The work began about eight years ago with the burial of specimens of iron and steel pipe for the purpose of determining the extent and seriousness of soil action. From time to time the number of test locations and the variety of specimens have been increased as the need for information became more fully appreciated.

At two-year intervals some of the specimens of pipe are removed and returned to the Bureau of Standards for study. The rates at which they lose weight and at which pits deepen are determined. When sufficient data have been collected, it will be possible to predict the life of the several pipe materials in various soils and to determine which materials best adapted to any local condition. These data and corresponding data on the behavior of protective coatings will enable the engineer to select the most economical protection for new pipe lines and old ones that have to be reconditioned. Reduction of the cost of maintaining lines should result in reducing the cost of fluids which the lines transport and so the public as well as the owners of the lines should be benefited.

Pipe Protection

The protection of a pipe line costs from a few hundred to a thousand or more dollars per mile. It is desirable, therefore, to apply protection only where and to the extent that it is needed. To aid in determining the location of the corrosive localities along a proposed pipe line, and to assist in the selection of suitable protection several studies are under way. Preliminary results indicate that in the heavy clay soils of the East



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FOR ANY JOB WITH "TOLEDOS"

Even though it may be 4" pipe laid under the concrete floor or larger sizes in some far corner of the refinery "TOLEDOS" will cut and thread it easily, quickly and perfectly. There's a "TOLEDO" tool for every job, whether large or small.

When desired these same efficient hand operated threading and cutting tools are instantly converted to swift, highly efficient power machines with a "TOLEDO" Power Drive. Thousands of these portable, powerful Drives are cutting labor costs and increasing efficiency in piping jobs.

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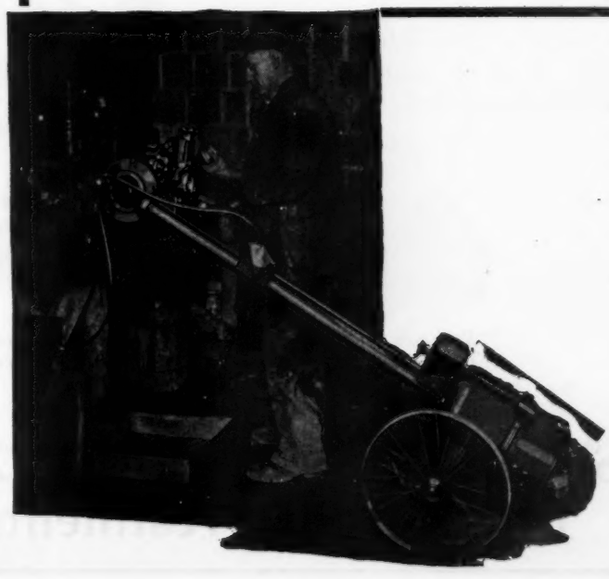

Core Drill Sets Casing, While Well Makes 35 Million Gas « « « «

How a well blowing thirty-five million feet of gas was brought under control recently, made a dramatic story for the newspapers.

Thirteen hundred feet down, 240 feet of casing had collapsed. To remove it and reset new casing was the daring feat of the drill crew, working under an experienced Sullivan drill man.

But those who witnessed the incident were impressed also with the work of the Sullivan Drill. Especially important was its ability to back away from the hole on its own power to make room to work around the hole.

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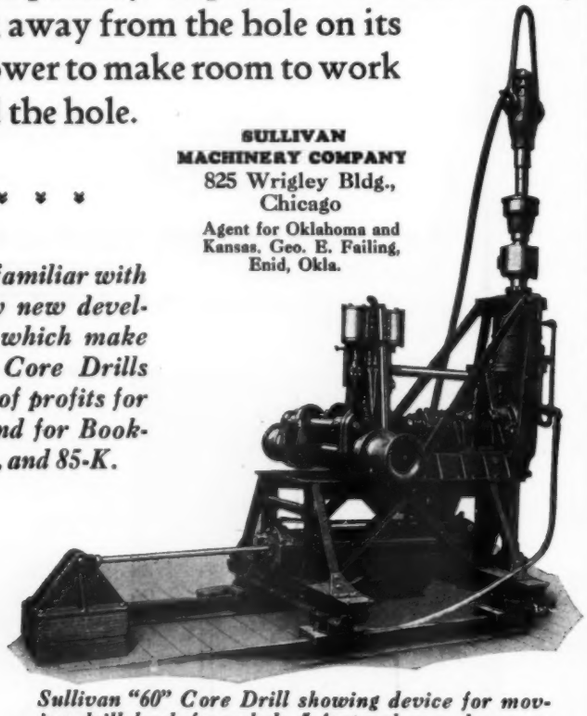
Are you familiar with the many new developments which make Sullivan Core Drills a source of profits for you? Send for Booklets 85-H, and 85-K.



Sullivan "60" Core Drill showing device for moving drill back from hole 5 feet, when rods are to be hoisted.

SULLIVAN CORE DRILLS
Protect Oil Investments

the acidity of the soil is an important cause of corrosion, and methods of measuring soil acidity have been developed. Farther west many soils are neutral or alkaline in their reaction. In such soils the electrical conductivity of the soil seems to be important, and simple methods for determining soil conductivity are being worked out.

Studies conducted during the past two years indicate that most long pipe lines carry electrical currents and that corrosion occurs where these currents leave the lines. Formerly it was believed that such currents were confined to regions in which electric railways were operated and that they were caused by leakage from railway tracks. It now appears that in addition to the currents from street railways, pipe lines carry current generated at the surface of the lines much as current is produced in a primary battery.

Pipe Line Currents

The discovery of these pipe-line currents and their relation to corrosion furnishes a means by which the owner of a line can locate a large portion of the places where his line needs re-conditioning and enables him to prevent much of the expense formerly necessary to maintain oil lines.

The most common method of protecting pipes against soil action is to cover them with bituminous material such as coal tar pitch or asphalt. Greases and paints are also used for this purpose. Indications are that the thin bituminous materials offer insufficient protection against severely corrosive soils on account of the pinholes which are nearly always present. Moisture penetrates most thin bituminous coatings.

Since bituminous materials are essentially viscous fluids, they tend to flow under the weight of soil and pipe, leaving too little protective material at points of maximum pressure. To avoid this trouble it is customary to re-inforce the bituminous material by the addition of some finely powdered solid or by incorporating a wrapping of cloth or felt. There are on the market between 10 and 20 rather extensively used coatings and perhaps 50 newer and less known products. All of these have their advocates, but actual data on the ability of any of the coatings to protect lines are not extensive, and for the newest types such information is almost entirely lacking.

Co-Operative Studies

From the standpoint of both manufacturer and consumer it is desirable that additional information on the performance of protective coatings be obtained. The Bureau of Standards is, therefore, co-operating with the American Gas Association, the American Petroleum Institute, the Underground Pipe Protection Institute, and independent manufacturers of protective coatings, in field studies of the behavior of a large number of proprietary coatings applied to short lengths of pipe and to working lines. The bureau is also trying to develop methods of testing coatings in the laboratory. Already the causes of a large portion of the failures of coatings have been ascertained, and both manufacturers and pipe-line men have taken advantage of the discoveries. Much additional information is expected within a few years.

In addition to securing information on corrosion, pipe materials and protective coatings, the bureau has been of service in getting the interested parties together for discussions of problems of mutual concern. A better appreciation of these problems and a better spirit of co-operation has been the result. The co-operation is reducing underground corrosion losses and making the transportation of oil, gas and water less expensive.

SUBSTITUTING NATURAL GAS FOR MANUFACTURED

(Continued from Page 78)

were exclusively for domestic and commercial service, were reduced to 50 per cent of the sales in the same month of 1927, whereas the heating value of the manufactured gas previously distributed was 40 per cent that of the natural gas. The immediate job of the commercial department was therefore not only that of developing new loads in residence heating and industrial uses, but to sell additional service to the present domestic and commercial customers to compensate for the 50 per cent loss in volume sustained through higher heating value of the new gas. Domestic and commercial water heating and auxiliary space heating were the means employed and very active campaigns were immediately inaugurated in selling automatic storage water heaters and fireplace heaters.

No restrictions were placed upon the sale of gas for residence heating in any part of the city and the utilization division co-operated with the new business department in selecting efficient types of burners and equipment to be sold. Two types of conversion burners were handled in addition to gas-designed furnaces and boilers. Burners and furnaces were sold either equipped for full automatic control or for manual operation in accordance with the customers' wishes.

Selling Plans

As time went on, various selling plans and campaigns were used, in which certain appliances, particularly automatic storage water heaters, were featured with the househeating equipment and long-term payments allowed. During the summer months payments on house-heating installations sold are suspended until September in order to encourage installations during the slack period.

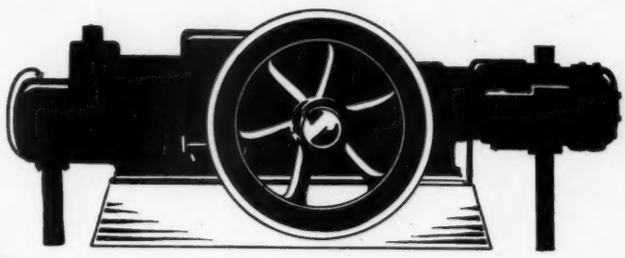
On June 1, 1930, we had connected to our lines a total of 8,249 complete house-heating installations, of which 7,229 were sold by our company and 1,020 by outside dealers. We have adopted a policy of co-operation and encouragement to the outside dealer, provided approved appliances and equipment are sold and installed, which we have found to be generally satisfactory. The installations sold by us are classified as follows:

Gas-fired central heating plants	1,993
Conversions of furnaces and boilers	4,229
Space heaters	1,007
Total	7,229

It is seen that over 50 per cent of the installations sold are conversion burners. The number of residences being heated with gas as of June 1, 1930, is approximately 16 per cent of the total number of residence buildings in the city. Our experience has been, as saturation of house-heating installations proceeds, that the sales resistance due to increased costs of gas over coal increases. This is, of course, a natural situation due to the marginal classification of prospective customers with any commodity to be sold. An analysis made during the last heating season disclosed that the average cost of heating with gas through conversion burners was increased approximately 35 per cent over the cost of coal previously burned, whereas gas-designed furnaces showed an increase of only 12 per cent over the cost of coal previously burned. We are considering two plans to overcome this sales resistance, namely, by selling gas-designed equipment and by selling conversion equipment plus ceiling insulation, both on small monthly payments and long-term contracts. A study of the ceiling-insulation feature shows that under average conditions about 15 per cent saving in fuel consumed can be made at a cost of about $50 for insulation if the company underwrites the proposition. This will very nearly compensate the increased efficiency of the gas-designed equipment, without ceiling insulation, over the conversion burner, whereas the cost of the installation will considerably favor the conversion job. This is, we believe, a very important point in the problem of building up house-heating loads.

New Business

During the calendar year of 1929, activities in our new business department exceeded any previous records in the history of the company. The sales of merchandise were slightly in excess of $1,000,000. Over 2,500 automatic storage water heaters were sold by the domestic division. In the house-heating division, 4,595 net installations were sold, yielding 1,455,500,000 feet of annual consumption, which is almost 50 per cent of the total annual sales of manufactured gas in Den-



COMPRESSORS

As an indication of the dominant position held by this publication in the oil field, manufacturers of compressors used space during the first six months of this year as indicated below.

The Oil and Gas Journal	64¾
Second Publication	42½
Third Publication	17½
Fourth Publication	10½
Fifth Publication	4

Our representatives will gladly furnish you information and data in regard to advertising rates upon request.

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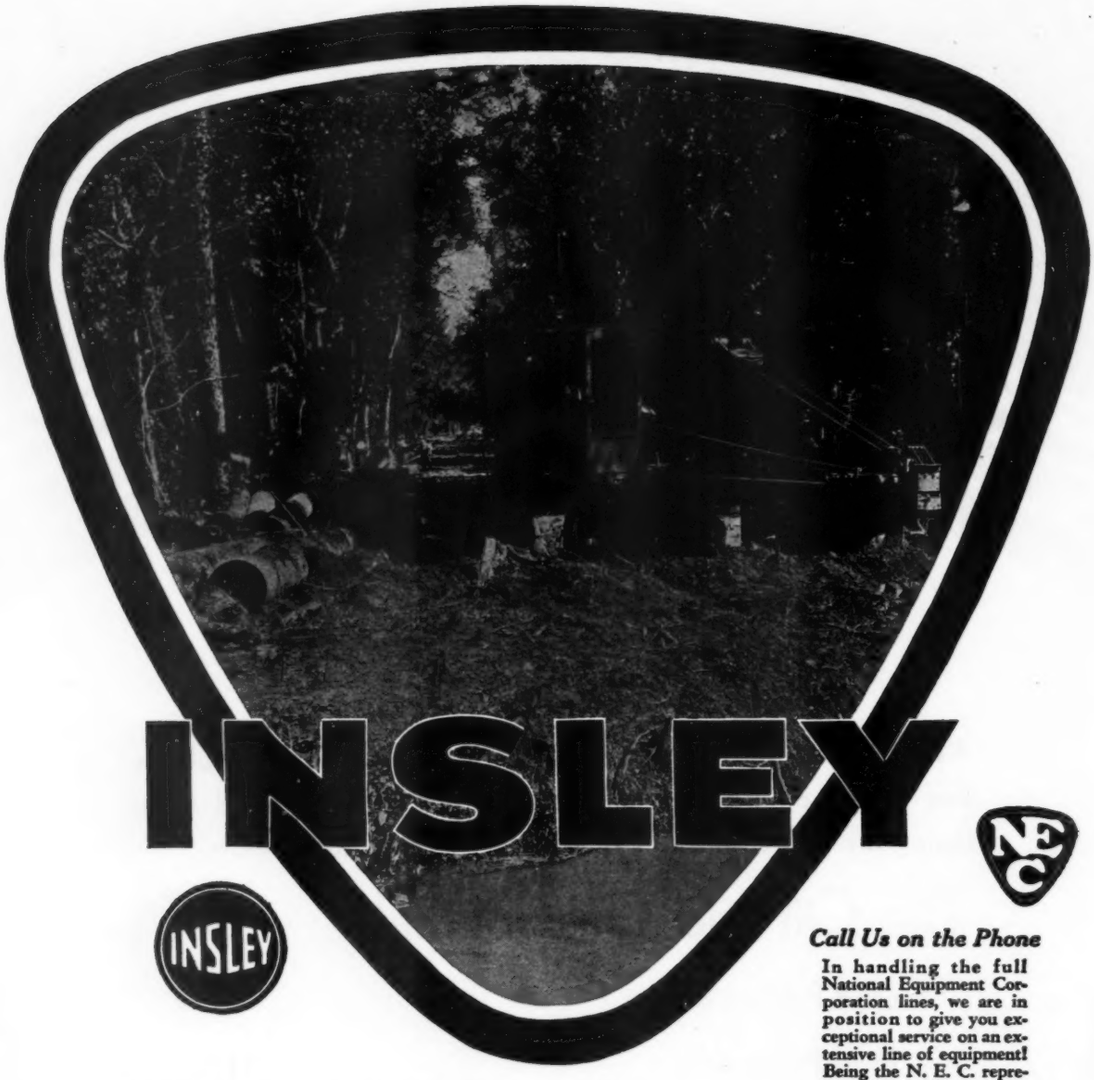

AHEAD of your ditcher, preparing roadway, leveling out humps and filling hollows, clearing out rocks and obstacles, the Half-Yard Insley pays big profits in low-cost ditch yardage. It keeps the ditcher *ditching* without over-frequent interruptions and delays for adjustments. And the Insley is just the fellow for the job — a reasonable investment unit that has demonstrated its capability and dependability on miles and miles of pipe lines. Ask for Insley literature.

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ver of the year 1927. The industrial fuel division added 60 customers for increased sales of 107,818,000 feet annually. These figures are shown to indicate the new business activities that may be expected during the first full calendar year's operation with natural gas.

Three important problems are presented in the distribution division when changing from manufactured to natural gas—the first is that of distributing the large increase in volume of gas to be sold; the second, that of overcoming excess leakage, dust accumulations and shrinkage of meter diaphragms due to the absence of moisture in natural gas; and the third, that of minimizing the dangers attendant to distributing an odorless gas.

In Denver we were distributing a manufactured gas of 400 B.t.u. per cubic foot under standard conditions of temperature and pressure. The change was to a natural gas with a heating value slightly above 1,000 B.t.u., which immediately increased our distribution capacity for carrying heat units about two and one-half times. The design of our distribution system is known as the Doherty Ideal Distribution System in which we utilize higher pressures and smaller mains than those commonly employed. Nearly 70 per cent of all our mains are 2 inches in size and 85 per cent of all house services are individually regulated. We had in use with manufactured gas 400 househeating customers, mostly supplied through 2-inch mains, so that house heating was not entirely new to us and we had already demonstrated that a considerable concentration of house-heating load could be adequately served through 2-inch mains.

Distribution Problem

The town border station for the natural gas is located exactly diametrically opposite the source of supply of manufactured gas at the gas plant which had formerly supplied our six district holder stations so that the first problem was that of carrying the natural gas supply to the distribution centers for delivery to the supply mains. An intermediate-pressure trunk main was installed connecting up the various holder stations upon which is carried 40 pounds pressure at the town border. The district holder stations were converted from boosting plants to pressure-reducing stations. A total of nine district regulator stations supply the distribution system requirements. During the past winter, which was considerably colder than normal, we supplied the heating requirements of some 8,000 customers and experienced no trouble from failure of the 2-inch distributing mains to function satisfactorily. While the maximum hourly demand upon our distribution system has doubled since the days of manufactured gas, we have spent a very nominal sum for improvement and this has been principally for enlargement, not of the small distributing mains but of the large feeder mains.

Our experience in Denver and other Colorado towns has led us to believe that while we must keep our finger on the pulse at all times in order to anticipate pressure reinforcement before poor service is experienced by the customer, the distribution system of a gas company can be made to handle enormously increased quantities of gas with very moderate investment for improvement. In one of our towns, the hourly output has been increased from 20,000 feet to 170,000 feet, or 750 per cent, with an expenditure equaling only 5 per cent of the cost of the original distribution system. In this town, the daily output has gone from 200,000 feet to 3,700,000 feet and over 50 per cent of all the houses are now heated with gas. Most of these customers are supplied from 2-inch mains. There is no industrial gas sold in this town, but the average consumption per customer in 1929 was 200,000 feet.

Saturating the Gas

The problem of preventing serious effects from a change to an odorless and dry natural gas is in our estimation of more concern than that of providing distribution capacity for the increased load. When we substituted dry natural gas for manufactured gas in two of our towns in Colorado five years ago, we made no provision for saturating the gas before distribution and the result was anything but satisfactory. I think this has been the experience in all other cities which have done likewise. The unaccounted-for gas in one of our towns went from 250,000 feet per mile of 3-inch main per year to nearly 2,000,000 feet in less than a year. In both towns we experienced trouble from dust accumulations and found it necessary to change all meter diaphragms within a two-year period.

In Denver we profited by the experience in other towns and began at once to saturate the natural gas with water vapor and oil fog before distribution. The water and oil are introduced at the outlet of each district regulator station. Live steam is admitted in sufficient quantities to raise the temperature of the outgoing gas about 5° above that of the incoming gas. The amount of steam is automatically controlled by means of a temperature regulator. We find by periodic test that the humidity of the gas at our pressure-control points in the outlying district is from 75 per cent to 90 per cent. In extremely cold weather the humidity is reduced to a point sufficient to prevent trouble from frost. About 1 gallon of oil is admitted as fog per 1,000,000 feet of gas treated. After a little more than two years' use of this method we are entirely satisfied with the results obtained in our case but believe maximum results were obtained only because saturation was begun immediately. Experience seems to indicate that it is more of a preventive measure than a cure.

Our unaccounted-for gas has not increased over what it was two years ago. Our meter diaphragms are still oil-saturated and we have had no trouble from dust accumulations. We have examined a great many lead joints in cast-iron mains and have tested every section of cast-iron main replaced for larger size since natural gas was introduced. Our opinion is that while excess moisture and liquids have decreased in amount, and in some cases have disappeared, the yarn in the joints is still liquid-saturated and the joints are as tight as they were with manufactured gas.

Service Troubles

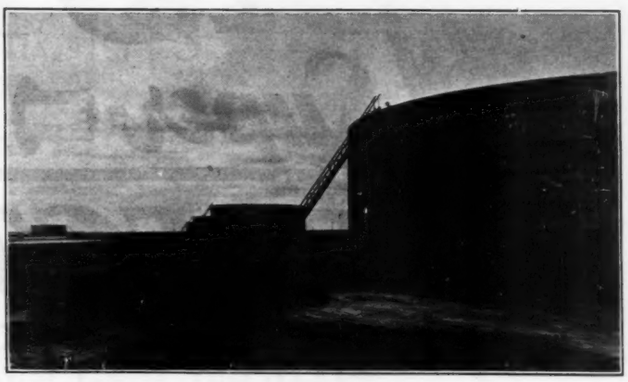
As far as service troubles are concerned, the change to natural gas has been very satisfactory. In the year 1927, 56,352 complaints were received, or .775 per customer, whereas in the year 1929, 53,516 complaints were received, or .706 per customer. The classification has changed very materially with natural gas and a comparison is interesting. Leaks, poor pressure, no gas and high bill complaints have decreased while adjust appliances and house-heating complaints have increased.

The distribution of odorless natural gas has always presented a considerable element of danger due to failure to detect leaking gas until a dangerous quantity had accumulated. Recently, there has been developed in California a product of the oil refinery which meets all of the requirements of a practical odorant. It has been used successfully for some time by the gas companies out there. This product is manufactured and sold by the Standard Oil Co. of California under the trade name of Calodorant. We are using the odorant in Denver, admitting it into the gas into the intermediate-pressure mains at the town border station where it impregnates all of the gas distributed in the city. It requires from 2½ to 3 gallons of Calodorant to distinctively odorize 1,000,000 feet of gas. Since using the odorant in Denver, we have been enabled to discover several very bad leaks which might have caused serious damage, and we believe the use of it has removed, in a great measure, the dangers heretofore attendant with the distribution of natural gas.

PREPARE OIL WASTE REVIEW

The first section of a contemplated manual on disposal of refinery wastes will be published shortly in the first, or 1930, edition by the American Petroleum Institute. The manual is being prepared by the committee on disposal of refinery wastes, under the chairmanship of A. S. Russell, in collaboration with similar committees of the divisions of production and marketing.

PITTSBURGH (DES MOINES)
Steel Storage Tanks



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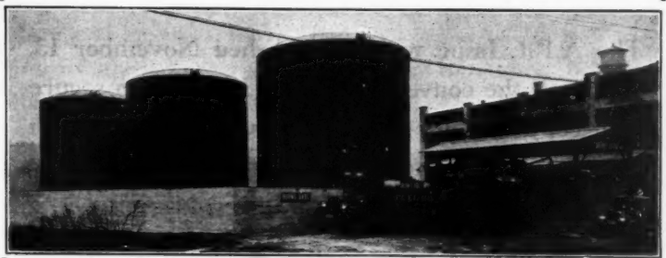

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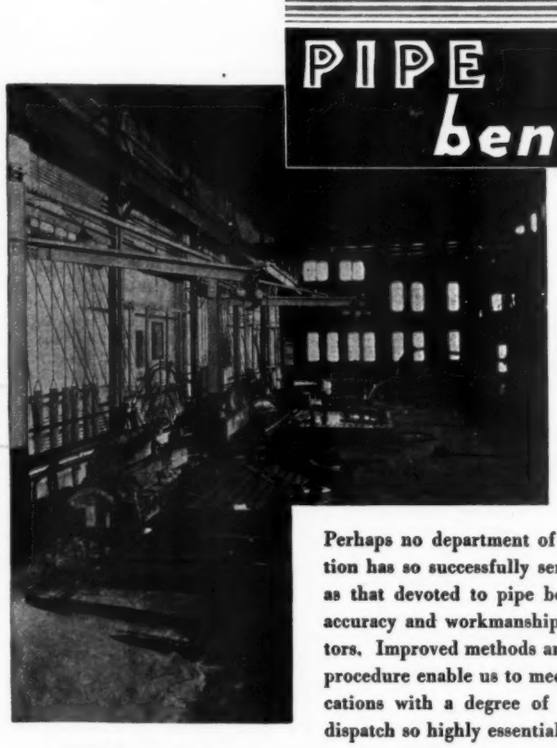

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OVERPRODUCTION MEANS ONLY MORE OIL SOLD FOR LESS MONEY

By James McIntyre

Up to a certain point, statistics prove that the more oil the producer brings to the surface the less is his income from his product.

The Bureau of Mines' annual report covering the oil business in 1929 in the United States covers, among many other things, the value of the crude oil produced in each state in which oil exists in commercial quantity. It is interesting to compare these figures with the bureau's figures in its report for 1926.

It will be recalled that 1926 was one of the few years in the 70 years of the oil business in which it might be said that all oil producers made money. There was a real shortage of oil that year and the average price of crude was $1.88 per barrel in the United States. The production of crude oil in that year was 770,874,000 bbls., according to the figures of the Bureau of Mines, and its value, at $1.88 per barrel, was $1,447,760,000. The production last year was 1,007,417,000 bbls. (Bureau of Mines figures) and the average price only $1.27 per barrel, which price and production yielded producers and royalty owners only $1,280,417,000.

This would make it appear that the more oil it brings to the surface the less gross income the producing industry receives. For example the average price of Oklahoma City oil is now $1.32½. At that price 100,000 bbls. production yields $132,500. If proration were lifted in that field or if for any other reason the price were cut to, say, 75 cents per barrel for that grade of crude, the Oklahoma City Field would have to produce 176,000 bbls. a day to yield the same total income the producers there now receive for 100,000 bbls. It is proposed to permit Oklahoma City in the remaining days of the year to produce 131,000 bbls. per day, which at the present price would have a gross value of $173,575 per day. On a 75-cent market the field could easily produce 231,000 bbls. per day but the producer would receive only $173,250 per day.

1926 a Prosperous Year

In 1926 crude oil was being taken out of storage from the opening of the year up to midautumn, when the production of Seminole became great enough to upset the balance between supply and demand. Spurred on by a good average price for oil, wildcatters had been active and drilling operations were being carried on busily wherever there was a chance to get production. It was a great year for the producer. The following year, with Seminole at its height, told a different story. Production rose from 770,874,000 bbls. in 1926 to 901,129,000 bbls. in 1927, which was in excess of demand. The price of crude oil dropped from an average of $1.88 per barrel over the United States to $1.30, and the producers' aggregate income fell from $1,447,760,000 in 1926 to $1,172,830,000 in 1927. The industry produced 130,255,000 bbls. more oil in 1927 but received for it $274,930,000 less than their gross crude oil income in 1926.

The year 1928 saw the industry uncovered from the debacle of 1927. The average price of crude oil fell to $1.17 per barrel and while the production of 901,474,000 bbls. was only slightly larger than in 1927 the aggregate gross income from the product fell to $1,054,880,000 or $117,950,000 less than in 1927 and $392,880,000 below the 1926 income.

Last year with the largest production in history, and millions of barrels more than the refining industry had use for, the income of producers was kept still below that of 1926 by more than $167,000,000, as already stated.

In the Big Producing States

The three great producing states of Oklahoma, Texas and California are striking examples of greater production but smaller income. In 1926 Oklahoma produced 179,195,000 bbls. at an average of $2.31 per barrel, giving producers and royalty owners a gross income of $413,900,000. In 1929 a production of 255,004,000 bbls. at $1.43 per barrel brought the owners only $364,650,000.

California's overproduction in 1929 was costly to producers. In 1926 the value of California's production of 224,673,000 bbls. of oil was $345,547,000, at $1.54 per barrel. Last year a production of 292,534,000 bbls. yielded the producers and royalty owners, at $1.10 per barrel, $321,367,000. Thus, Californians received $24,180,000 less, although they produced and marketed 67,367,000 bbls. more than in 1926.

It was a little different in Texas. There the increase in production was so great that even at the decreased price in that State the producers received a little more money in 1929 than in 1926, but proportionately they were really losers. In 1926 a production of 166,916,000 bbls. of Texas crude was valued at $308,700,000, at the rate of $1.85 per barrel, while last year, at $1.09 per barrel, the production of 296,876,000 bbls. was valued at $322,520,000. Texans produced 129,960,000 bbls. more, but received only $13,820,000 more for their product.

In the three great producing states of Texas, California and Oklahoma the combined production in 1926 was 570,784,000 bbls., valued at $1,068,147,000. Last year they produced 844,414,000 bbls. valued at $1,008,537,000. The producers received $59,610,000 less for 273,630,000 bbls. more production.

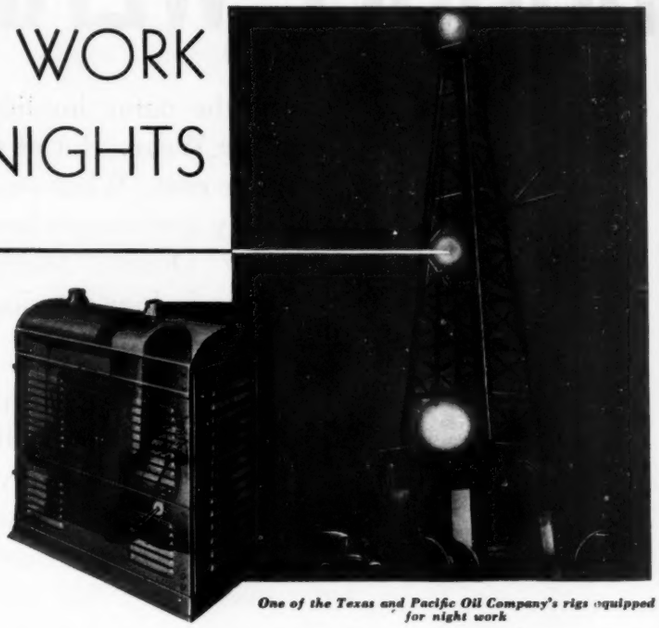
The following table gives the production and value in all the producing states in 1929 and 1926:

COMPARATIVE PRODUCTION AND VALUES—YEARS 1929 AND 1926

	Production bbls.	Value	Av. price per bbl.
Arkansas:			
1929	24,917,000	$21,890,000	$0.88
1926	58,332,000	64,600,000	1.11
Dec. in prod.	33,415,000		
Dec. in value		42,710,000	.23
California:			
1929	292,534,000	321,367,000	1.10
1926	224,673,000	345,547,000	1.54
Inc. in prod.	67,861,000		
Dec. in value		24,180,000	.44
Colorado:			
1929	2,358,000	2,380,000	1.01
1926	2,768,000	5,100,000	1.84
Dec. in prod.	410,000		
Dec. in value		2,720,000	.83
Illinois:			
1929	6,319,000	10,430,000	1.65
1926	7,760,000	17,200,000	2.22
Dec. in prod.	1,441,000		
Dec. in value		6,770,000	.57
Indiana:			
1929	981,000	1,610,000	1.64
1926	808,000	1,770,000	2.19
Inc. in prod.	173,000		
Dec. in value		160,000	.55
Kansas:			
1929	42,813,000	62,510,000	1.46
1926	41,498,000	93,800,000	2.26
Inc. in prod.	1,315,000		
Dec. in value		31,290,000	.80
Kentucky:			
1929	7,775,000	13,220,000	1.70
1926	6,274,000	15,250,000	2.43
Inc. in prod.	1,501,000		
Dec. in value		2,030,000	.73
Louisiana:			
1929	20,554,000	25,700,000	1.25
1926	23,201,000	38,200,000	1.65
Dec. in prod.	2,647,000		
Dec. in value		12,500,000	.40
Michigan:			
1929	4,528,000	6,140,000	1.36
1926	94,000	253,000	2.69
Inc. in prod.	4,434,000		
Inc. in value		5,887,000	*1.33
Montana:			
1929	3,980,000	7,260,000	1.32
1926	7,727,000	10,170,000	1.32
Dec. in prod.	3,747,000		
Dec in value		2,910,000	†.50
New Mexico:			
1929	1,830,000	2,170,000	1.19
1926	1,666,000	3,270,000	1.96
Inc. in prod.	164,000		
Dec. in value		1,100,000	.77
New York:			
1929	3,377,000	13,170,000	3.90
1926	1,956,000	7,200,000	3.68
Inc. in prod.	1,421,000		
Inc. in value		5,970,000	.22

(Continued on Next Page)

WHEN OIL MEN WORK NIGHTS



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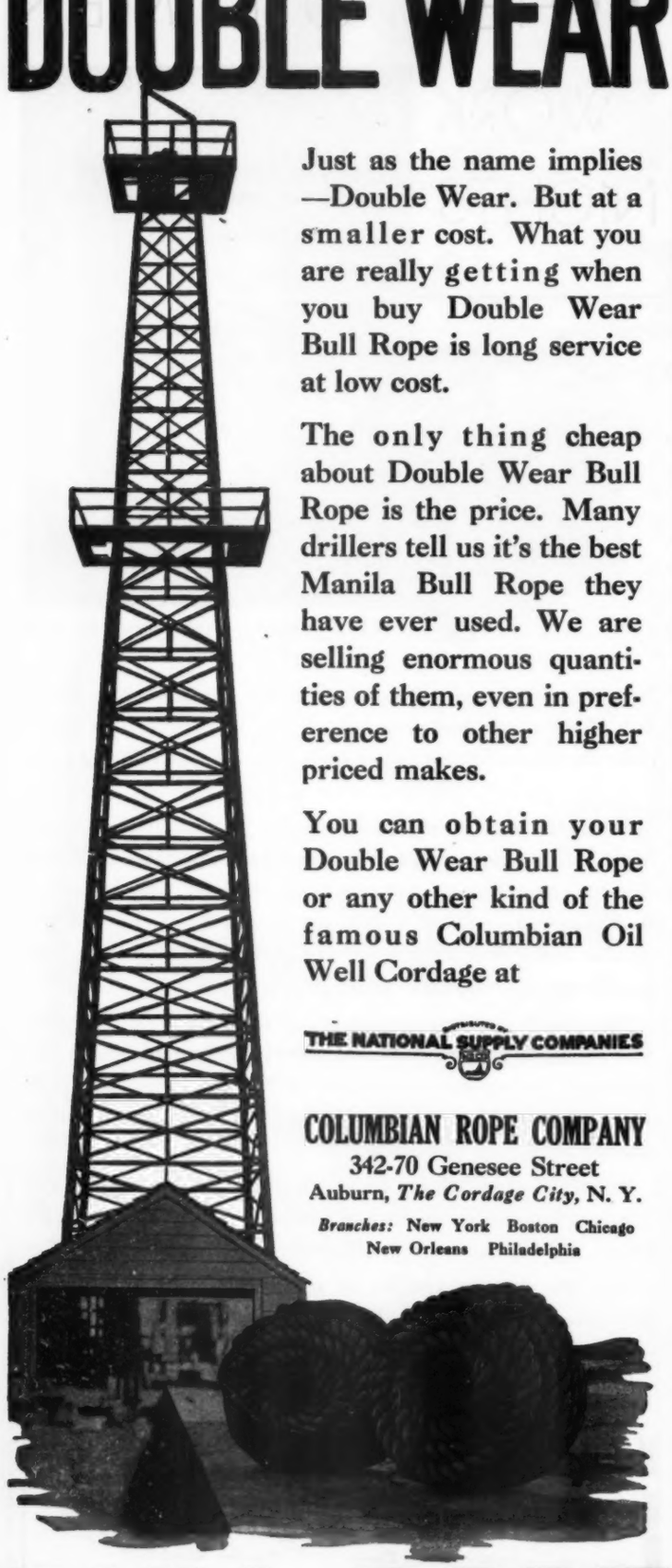

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	Production bbls.	Value	Av. price per bbl.
Ohio:			
1929	6,743,000	15,770,000	2.34
1926	7,272,000	19,180,000	2.64
Dec. in prod.	529,000		
Inc. in value		3,410,000	.30
Oklahoma:			
1929	255,004,000	364,650,000	1.43
1926	179,195,000	413,900,000	2.31
Inc. in prod.	75,809,000		
Inc. in value		49,250,000	.88
Pennsylvania:			
1929	11,820,000	44,800,000	3.79
1926	8,961,000	31,930,000	3.56
Inc. in prod.	2,859,000		
Inc. in value		12,870,000	.23
Tennessee:			
1929	19,000	30,000	1.58
1926	43,000	100,000	2.33
Dec. in prod.	24,000		
Dec. in value		70,000	.75
Texas:			
1929	296,876,000	322,520,000	1.09
1926	166,916,000	308,700,000	1.85
Inc. in prod.	129,960,000		
Inc. in value		13,820,000	.76
West Va:			
1929	5,574,000	20,070,000	3.60
1926	5,946,000	20,560,000	3.46
Dec. in prod.	372,000		
Dec. in value		490,000	†.14
Wyoming:			
1929	19,314,000	24,700,000	1.28
1926	25,776,000	51,020,000	1.98
Dec. in prod.	6,462,000		
Dec. in value		26,320,000	.70
Alaska-Utah:			
1929	7,000	30,000	4.29
1926	8,000	10,000	1.25
Dec. in prod.	1,000		
Inc. in value		20,000	3.04
Ttl. U. S.—			
1929	1,007,323,000	1,280,417,000	1.27
1926	770,874,000	1,447,760,000	1.88
Inc. in prod.	236,449,000		
Dec. in value		167,343,000	.61

*Decrease in 1929. †Increase in 1929.

SUGGESTED SAFEGUARDS IN CRACKING OPERATIONS

(Continued from Page 38)

certain extent, the culmination of such circumstances.

The tendency to create an air-vapor mixture of the explosive range varies:

(a) Directly as the pressure.

(b) Directly as the molecular weight of the hydrocarbon vapors.

In further explanation it may be said that due to residual or applied heat enough vapor is formed under low pressure so that the air-vapor mixture is usually so rich in hydrocarbon as to be beyond the explosion range. If the pressure in the system is increased (above atmospheric) this tends to decrease the percentage of hydrocarbon vapor and increase the percentage of air in the mixture and for this reason the air-vapor mixture is more likely to fall within the explosive range at the higher pressures.

Possibility of Ignition

The possibility of ignition by the presence of iron sulphide is dependent upon the corrosiveness of the stock being processed and the frequency with which the equipment is cleaned. Without knowing the conditions existent at each and every individual cracking unit the only method for the expulsion of air which can be advocated is by the use of the cold liquid displacement method. Should one of the other methods be used it is of paramount importance that the operators be fully aware of the precautions to be exercised to avoid a combination of circumstances which might result in a fire or explosion.

If after a plant is shut down, men are required to enter for cleaning or for repairs, vapors therein become an element of danger from the standpoint of toxicity and inflammability. It is assumed that after a shutdown, the plant is emptied, drained, and steamed and that all of the vapors in the system have been expelled. However, it may not remain free of gas and vapor during the entire cleanout period. The possible sources from which oil, vapor, or gas, may come into the unit are raw oil connections, tower refluxing connections, common connections to gas control headers, and from distillate remaining in low parts of condenser coils. These are merely mentioned to cite examples. It has been proven that oil and vapor leakage through connections to shut down units have been the source of vapors into parts of the equipment where men have worked, thus subjecting them to toxic poisoning and the hazards of fire or explosion. There is but one way to remove these evils and that is:

(a) When a unit is down, break all connections through which oil, vapors, or gas might enter the unit or can enter the unit for normal operation. Primarily this will include raw oil lines, distillate or other refluxing lines, distillate or final product lines, and uncondensable gas connections.

This precaution should be carried also a step further in that when workmen are employed in vessels it is important to see that all pipe connections thereto which normally carry oil or vapors to or from that vessel, are disconnected, unflanged, or blanked off.

An element of danger with respect to vapors also lies in its presence about the process area, and in trenches where it may serve as a propagant of flame from furnace fires, torches, etc., on the outside area into enclosures where a number of men may be on duty and where the operating controls are located. The possible sources of such vapors are leaking or ruptured valves, piping, fittings, pumps, liquid level and sample lines, and discharge from relief valves.

The only way to approach immunity from leaky or impaired valves, fittings, and piping is to make sure that proper materials have been used and that the equipment is inspected periodically so that repairs and replacements can be made before breakdown. Pump packing should be frequently examined and taken up to avoid leakage. Misoperation of pump discharge valves should be avoided to prevent excess pressure in pump cylinders with possible fracture of cylinder head or gaskets. Relief valves should be connected to discharge lines that will conduct the vapor outside the immediate plant area. Sample and liquid level drawoff lines connected to the hot side of the unit should be provided with ample capacity cooler coils.

The sources of vapor in enclosures include those mentioned with reference to outside areas but the hazard element can be considered to be of greater consequence due to their confinement and more or less continued presence of workmen.

Aside from the factors mentioned as being the possible causes for the presence of vapors on the outside, we also have in addition on the inside of enclosures, sample sinks, and distillate tanks.

Sample sinks should have a waste pipe discharge into a combined sump, seal and trap located outside the enclosure so as to prevent a flash from the sewer system extending into it. Adequate provisions for flushing such sinks should also be provided.

Danger from Vapors

Distillate receiver tanks and connections thereto are a common source for the escape of vapor due particularly to the character of the product. In addition, frequent operation of valves and sample lines involve the escape of this vapor. Breakage of gauge glasses is another factor. It is difficult to insure freedom from such vapor at all times and therefore care and supervision and such safeguards as can be adopted should be provided.

In order to reduce and isolate the danger of vapors and gases from distillate tank enclosures it is recommended:

1. That wire glass windows or partitions between the control house and the distillate receiver tank house be no larger than is necessary for the control man to make his observations.

2. That these windows be in fixed sashes so as to cut the control house off from the distillate receiver tank house and that the wire glass panels be kept in good condition.

3. That the handles of all control valves including those on the gauge glasses be extended inside the control house, and where the stems pass through the glass or panel, suitable vapor tight stuffing boxes be provided.

4. That a 1¼-inch steam jet be installed in the distillate receiver tank

house with control valve outside the control house.

If these recommendations are executed the control house will not be involved, the controls on the distillate tanks will not be in the vapor zone and therefore the men will not be exposed and in case of a serious discharge the steam will serve to purge the receiver tank house and diffuse the vapor so as to reduce the possibilities of ignition.

As mentioned previously a danger of petroleum vapor in the system during cleanout and repairs and about the process area as well as in enclosures, lies in its mere existence through contamination of the air the workmen breathe. This danger is of course more pronounced in the enclosures. In addition to the precautions that have been mentioned in eliminating the source of such vapors, ventilation should be provided to remove such vapors as may be present through failure of the precautions to completely stem their source. Such ventilation should be designed to remove the vapors from low areas and trenches and other dead pockets into which vapor may settle.

In so far as vapors with respect to their inflammability are concerned, a source of ignition must be provided to render them hazardous. It becomes necessary therefore to eliminate, if possible, any and all sources of possible ignition. Of these we have:

1. Electrical devices and equipment.

2. Open flames and welding torches, furnace fires and torches for their ignition.

3. Sparks from tools and static discharges from armored steam and air hoses.

With respect to electrical devices and equipment, bells, telephones, switches and attachment outlets, and inside enclosures, as well as extension cords for portable lights it is well to bear in mind the following:

(a) The rules and regulations of the National Board of Fire Underwriters and the National Fire Protection Association, prohibit the installation of any spark producing devices or equipment in buildings that contain or may contain inflammable vapor.

(b) Electric bells, telephones, switches, and attachment outlets are spark producing devices and for this reason they should not be installed in enclosures. Where installed inside of control or pump houses they constitute an ever present danger that may, under a gas and vapor condition provide the spark that will touch off a bad fire or explosion.

(c) Extension cords for portable electric lights are a necessity around the refinery premises. They are indispensable for inspection and repair work. They are exposed to serious wear and often abuse. When made up of proper materials, properly assembled and regularly inspected they are safe for use in atmospheres that may contain inflammable vapor.

Extension cords should be made up of extra heavy metal shell plugs; extra heavy reinforced, rubber covered flexible cable; keyless metal sockets; vaporproof globe and substantial nonabrasive metal guard, with hook and wood handle. In assembling this equipment the ends of the flexible cord should be soldered, then fastened under the terminal screws, in the socket and plug and then soldered to the terminal. Inside of the socket and plug, the cord should be knotted or taped so as to avoid any strain on the terminal. In addition, the attachment plug and the socket or guard should be equipped with a clamp or other mechanical means for taking mechanical strains off of the terminals.

(d) It should be the duty of the electrician to keep a memorandum of the distribution of such extension cords and lamps and he should be required to maintain supply of extra extension cords and lamps (complete). The electrician should also be required to collect all extension cords at regular intervals (say monthly) and make a careful inspection of each and such repairs as are necessary.

(e) Employes should be instructed against using portable lights unless they are in good condition and never used unless the vaporproof globe and metal guard are in place.

These items may seem of small consequence but the tiny sparks they produce or may produce have caused many fatal accidents and large fires in atmospheres of inflammable vapor.

Welding

Occasions also arise requiring the use of welding about the plant during maintenance and repair work. It is necessary too that torches be used to ignite furnace fires. These are unavoidable and emphasize the requirement of care in elimination of the presence of vapors as previously outlined.

The occurrence of sparks brought about by the handling of tools or the use of improper tools must also be guarded against. In addition, sparks due to static discharges from improperly grounded armored steam and air hoses are also possible occurrences. Whatever the source they are an element of danger when hydrocarbons may and sometimes do exist in spite of all precautions to prevent it.

Corrosion of Equipment

Undoubtedly the greatest hazard problem of the petroleum refining industry today is corrosion, and it is particularly vital with respect to the safe operation of cracking plants.

Corrosion of cracking equipment is due primarily to the action of hydrochloric acid produced by hydrolysis of magnesium chloride, and hydrogen sulphide formed by the thermal breakdown of sulphur compounds in the oil. This latter, a gas, not only corrodes but as referred to before, deposits a pyrophoric scale on the equipment which in contact with air may glow or burst into flame.

The fact that certain of the sulphur compounds are stable at cracking temperatures while others readily undergo decomposition to form hydrogen sulphide precludes foretelling with any certainty the corrosiveness of the charging stocks based on sulphur content.

The action of these two corrosive agents is quite different. Hydrogen chloride is apparently quite harmless in the absence of water and is therefore most active in the cooler parts of the equipment where water can condense, such as condensers and heat exchangers.

Hydrogen sulphide is not particularly active below 500° F. and accordingly is most corrosive in the hotter parts of the system, namely, furnace tubes, return headers and caps, reaction chambers and vaporizers transfer and vapor lines, hot oil pumps, dephlegmators, pyrometer wells, etc.

There are a number of substances other than those cited which may contribute to the corrosion of cracking equipment, but their influence is either negligible or has not been proven. In addition, there is some electrolytic corrosion where unlike metals are used in the presence of water without regard for the different electric potentials.

Oxidation may also be mentioned with respect to the deterioration of furnace tubes and tube supports. The extent of this corrosion is dependent upon furnace conditions, temperature and excess air, together with coke deposit within the tubes and the temperature rise in the tube metal accompanying it. It is not particularly serious on the tubes as long as they are kept clean and comparatively cool by proper oil velocities.

Although considerable effort has been centered in the preliminary desulphurization of charging stocks, no economical method has as yet been devised. Other means have thus been resorted to in combating its influence. Generally speaking these may be grouped as follows:

1. The use of noncorroding metals.
2. The use of resistant metallic linings.
3. The use of nonmetallic lining.
4. The injection of chemicals.

Corrosion with regard to the frequency of replacement of equipment is a matter of operating cost. However, with respect to equipment failures it is a matter of operating safety. Therefore, no investigation of a cracking plant, from a standpoint of safety, can be considered complete unless it includes the element of corrosion both as to its character, sever-

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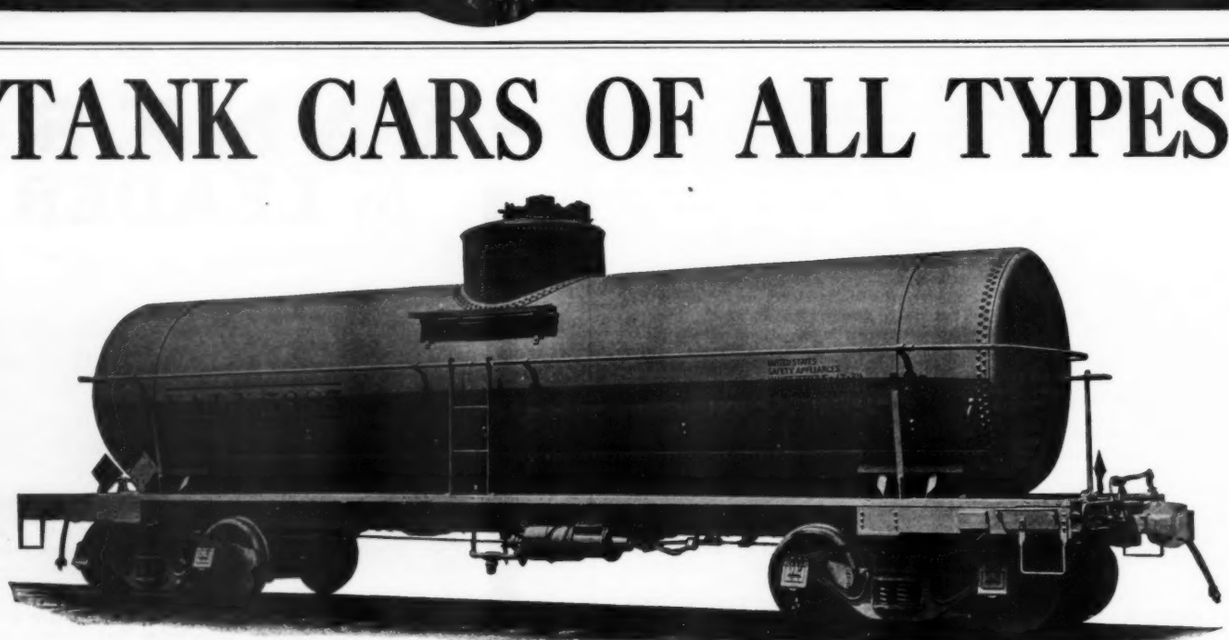

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ity of attack upon the respective parts of the plant, and the measures taken to combat it. With such information further remedies if available may be suggested to overcome or at least minimize this evil. Space does not permit covering in detail the various methods of combating corrosion other than as touched upon in the foregoing. Suffice to say that there are methods available to prevent it or alleviate it. In considering for adoption the use of any method it must be remembered that economical considerations do not always justify or make feasible the use of any of these remedies. In this event careful periodic inspections of the equipment are probably the only alternative safeguard against corrosion failures and the attendant danger to life and property.

Plant Practices

In addition to the safe practices mentioned in the foregoing paragraphs with respect to water and vapor there are many others which are worthy of attention. Some of these are cited here:

1. Expulsion of air from the system should be completed before the self-ignition temperatures of an air-vapor mixture are possible of being established.

2. Safety valves must be tested and reset if necessary for releasing pressure prior to each run. A periodic test pressure one and three-quarters times the safe allowable operating pressure should be applied at least once a month or prior to each run when the length of the runs exceed a month.

3. The plant shall not be charged until the operator foreman has made an examination as to the setting and workability of valves, damper controls, etc., and completeness of the reassembling; and in addition has had plant formally turned over to him by the cleanout foreman.

4. Furnace fires shall not be lighted until the furnace has been steamed for a period of 15 minutes to expel any vapor or gas present in order to prevent possible flashback or explosion. Lighting torch shall be ready for use before fuel burner valves are opened.

5. Torches for lighting furnace fires shall not be carried about the process area.

6. Burners shall be disconnected and removed after shutdown to preclude entrance of the gas or oil through possibly leaky burner valves.

7. During the coming-on-stream period low points in the process shall be drained at 15-minute intervals for withdrawal of water which might pocket therein.

8. Transfer temperatures during the starting up period shall be increased only at a rate consistent with pressure to prevent premature vaporization in the coil and coking of the tubes which condition is deleterious to operating results and may lead to overheating the tube metal and finally tube rupture.

9. An hourly log record shall be kept of operating temperatures, pressure, and other control conditions from the time of firing the plant. Unusual plant conditions or irregularities shall be noted on the log sheets and the relief crew shall be informed thoroughly thereof.

10. Hot spots on furnace tubes are a forerunner of tube ruptures. They should be watched carefully. If they become worse the plant should be shut down.

11. In case of tube rupture the plant shall be immediately dumped and proper valves adjusted to isolate tube bank from rest of system.

12. In case of leaks in the wall of bursted piping all operators shall make their immediate exit from proximity thereto and assume position of protection. The plant shall then be brought down in the usual manner. Quick dumping and sudden release of pressure will produce a shock to equipment, the effects of which may tend to change small leaks to large ruptures, in which event extreme danger may result.

13. Steam or water for cooling prior to cleaning shall not be introduced until plant pressure is well below steam or water pressure, and then under careful control.

14. When shift changes are made the relief crew shall be on duty ready for service 15 minutes before the change hour. Each man shall accompany the one he is relieving on a last tour over the plant for a joint inspection of the equipment in operation over which he has had or will have jurisdiction. The relieving man shall ask for and receive full information regarding the performance and condition of the equipment in connection with their duties. In short, the men taking the unit over should know exactly what they are getting and the men being relieved know what they are turning over. Thus the responsibility is fixed and stimulates the men to a more careful performance of duty.

15. Tube cleaning tools shall be kept moving within the pipe being cleaned whenever the rotor element is in motion. To hold stationary even momentarily will wear down and weaken the pipe wall.

16. Unbolting or loosening flanges when hot (frequently called hot bolting) shall be done only with exercise of extreme caution and after pressure has been released. Gasket failure and joint leaks may result in the discharge of hot vapor or liquid through the joint.

17. Return bend plugs, caps and holding members shall be replaced in the same fitting from which they are removed. Before replacement they shall be properly cleaned and lubricated.

18. Cleanout men shall make sure that tubes have been drained and thoroughly steamed and pressure released before attempting removal of plugs or caps.

19. Cleanout men shall assume protected position whenever chamber manhole covers are dropped.

20. During cleaning operation requiring the presence of men in chambers or dephlegmators, one man shall be stationed outside to furnish and summon aid if necessary in case of injury or accident to those within.

21. Safety valves in hot service shall be inspected and cleaned during each shutdown. This is true also of other valves installed in lines to prevent back flow of oil and vapors into the furnace during tube ruptures.

22. Before any vessel, run of pipe, furnace tube, etc., is headed up, cleanout foreman shall inspect and check condition.

23. Dropout lines and relief lines shall be steamed after use to purge the oil or coke which might otherwise restrict or plug them when cold.

24. The use of automatic control equipment shall in no way be considered an excuse on the part of operators for inattention and laxity on their part and failure to maintain smooth operating conditions.

25. The cleaning of clothes as well as other items with gasoline, distillate, etc., shall not be permitted in or about a cracking plant process area.

26. Operatives and others shall not be permitted to congregate in groups in process area of the cracking plant.

27. Clothes worn by all cracking plant operators shall be clean and free from oil.

28. If a unit is to be shut down for a prolonged period of time it should be completely drained of oil and adhering coke and then filled with a sulphur-free oil. Valves which permit of draining the system shall be locked closed. Pumps shall be opened, cleaned and greased and then reassembled. This applies also to valves. Temperature and pressure instruments shall have all parts thoroughly cleaned and protected against moisture, vapor and dust.

29. If a plant is to be placed in operation after a prolonged period of shutdown a thorough inspection shall be made of all parts regardless of how the unit was prepared for the shutdown.

30. If at any time it becomes necessary to shut a plant down prematurely because of leaks in piping, fittings, valves and connections, it should be drained, cooled and steamed in the usual manner for a normal shutdown, before repairs are attempted.

31. Coming-on-stream period of a run which follows major repairs shall be extended, over the time required in normal practice, so as to permit of more than

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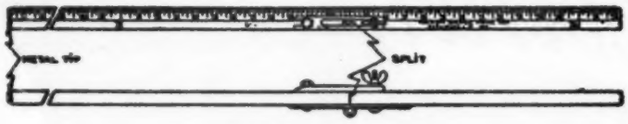

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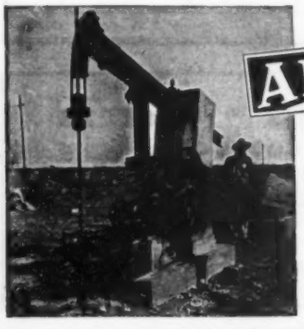

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ordinary observations of the effectiveness of the major repairs.

32. Steam should preferably be used in fighting oil or vapor fires due to leaks in hot process equipment. The amount applied, however, should be enough only to smother the flames as an excessively large volume applied directly to hot equipment, valves, fittings, etc., may produce cooling or contraction strains sufficient to enlarge the leaks and thus aggravate the condition.

33. A pressure certificate shall be posted in a conspicuous location to show the maximum allowable operating pressure, the test pressure, and the releasing pressure of safety valves with which the unit is equipped.

34. Steam connections to the system shall have check valves, in addition to the usual block valves, to prevent back flow of oil or vapor into the steam supply lines.

35. Block valve shall not be installed in relief lines.

36. Only cracking plant operatives shall be permitted about cracking plant area, unless special permission is obtained.

Safety Equipment

It is needless to state that in spite of well-trained and well-supervised crews accidents are liable to and sometimes do occur, if for no other reason than human frailties. Therefore, it is of paramount importance that provisions be made to retard and combat their ill effects by the use of auxiliary safety equipment and devices. Among these it has been found particularly advantageous to include the following:

A. Steam smothering lines and hoses at strategic locations. (1) About the process for fires and flashes following exposed equipment failures. (2) Inside inclosures, control and pumphouses for fires following ignition of air-vapor mixtures, possible accumulation or accidental release therein. (3) In tube and header compartments of furnace for fires caused by tube ruptures and return bend failures.

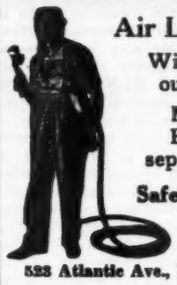
B. Chemical extinguishers, both hand and carriage type, or better yet central station type at points of easy access and availability. Portable equipment located inside of structures shall have notices to that effect posted on the exterior of these structures. Caution should be exercised in applying cold chemicals to hot leaky equipment to avoid sudden contraction strains.

C. Sand barrels and shovels at suitable locations for use in preventing flow of oil spillage to points of possible ignition as well as for combating oil spillage already ignited. These barrels, painted red, should be supported horizontally on saddles, and have their open end closed off with loose brick. The shovels also should be painted red and marked for emergency use only.

D. Blankets, woolen or asbestos, for smothering ignited clothing.

E. Quick descent devices to permit safe escape from elevated positions about the plant in case fires below cut off the normal means of descent. Such devices may be of tubular chute or guy wire type with either sling or platform. It is essential that such devices be periodically used so that in times of actual requirement the men will be thoroughly familiar with their use. This applies particularly to the guy wire slide device type.

F. Remote controls for the manipulation of dampers, process valves and steam smothering line valves to obviate the necessity of workmen entering the fire zones in time of emergency. (1) Damper controls should be of the two-way type so that a balanced pressure condition may be maintained in the furnace in case of tube rupture or header failure and thus prevent the entrance of air and the exit of flame through air openings, inspection doors, cracks in settings, etc. (2) Process valves, remote controlled, shall be those used in emptying the unit and in isolating those portions in which pipe or equipment failure may have occurred so as to thus shut off or minimize the quantity of oil or vapor which can



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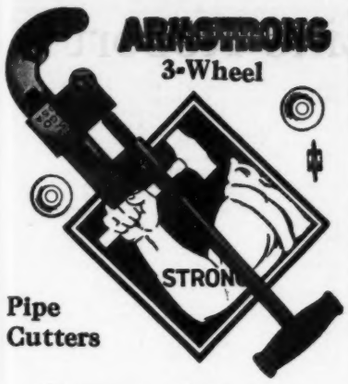

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possibly reach the opening and discharge into the process area, or outside confines of the process. (3) Valves in steam smothering lines for discharge of steam in buildings and other inclosures shall have remote controls located outside so that in case of ignition of flammable vapors therein the occupants need not hesitate within to manipulate them. Their first thoughts should be of egress.

G. The posting of "dead" and "live" unit signs to indicate the operating status of the unit. The opening and closing of valves on the wrong unit with the thought that a "live" one is a "dead" one and vice versa has taken place with serious consequences. The recurrence of such an act is possible. The presence of signs at control points about the units to tell the men whether a certain unit is on the line or down for cleanout will help to preclude misoperation of this kind.

New Locations

(Continued from Page 113)

Section 60, T.E.&L. W. L. Deininger's No. 1 R. C. Coleman, 150 feet south and west of the NE cor. of the R. C. Coleman 56-acre tract out of Section 229, T.E.&L. R. L. Hayes' No. 1 J. Clifton, 150 feet north and east of the most westerly SW cor. of Section 351, T.E.&L. Maer & Hamilton's No. 2 S. R. Jeffery, 150 feet north and east of the SW cor. of the NE of Section 53, T.E.&L. Martin & Maer's No. 1 S. R. Jeffery, 150 feet north and west of the SE cor. of the NW of Section 50, T.E.&L. Mason & Fitzgerald's No. 1 T. J. Routon, 934 feet north and 784 feet east of the SW cor. of Section 24, T.E.&L. J. J. Moran's No. 1 W. B. Howard, 150 feet south and east of the NW cor. of the east 25 acres of the south 50 acres of the west 80 acres of the W. B. Howard 260-acre tract out of Section 3,401, T.E.&L. O. H. Rathman's No. 1 S. B. Kemp, 150 feet south and east of the NW cor. of the north 30 acres of the south 80 acres of the W half of Section 401, T.E.&L. E. R. Riggs' No. 1-A B. H. Larimore and wife, 210 feet north and 767 feet east of the SW cor. of the W half of the SW of Section 2,247, T.E.&L. The Texas Company & McKanna's No. 1 S. F. Jeffery-B, 150 feet south and east of the NW cor. of the east 60 acres of the S half of Section 42, T.E.&L. Same company's No. 2 S. R. Jeffery-B, 150 feet north and west of the SE cor. of the west 100 acres of the N half of Section 42, T.E.&L. Wise & Porterfield's No. 5 F. M. Cullers, 150 feet north and 750 feet west of the SE cor. of the NE of the SW of Section 2, C.T.R.R. Survey A-2,177. Continental Oil Co.'s No. 1 Baptist Church, 4,362 feet northwest of the southeast line and 250 feet southwest of the northeast line of the Baptist Church 103-acre tract out of the I. L. Hill Survey A-126. Panhandle Refining Co.'s No. 1 M. Cox, 1,600 feet south and 257 feet east of the NW cor. of the M. Cox 200-acre tract out of Section 1, Indianola R.R. Survey A-156.

PANHANDLE, NORTH CENTRAL AND WEST TEXAS

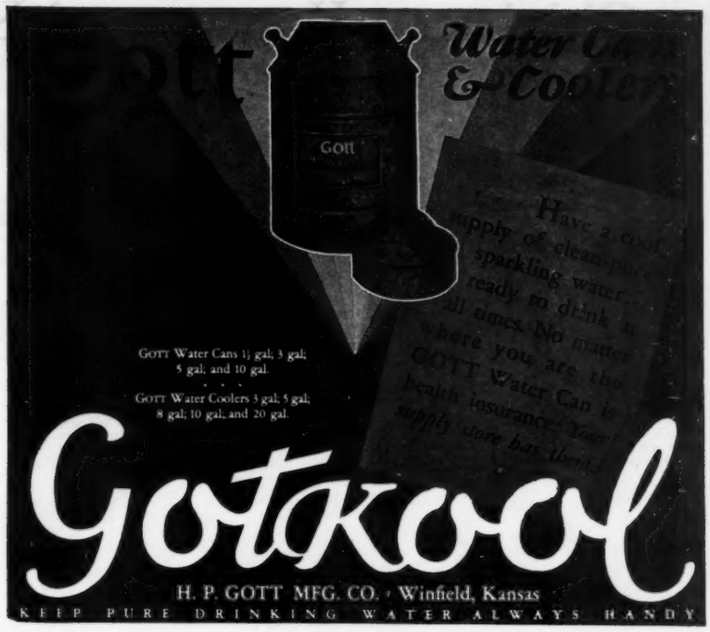
Corrections

In Coleman County: Joines and others' No. 2 J. B. Turner, 3,660 feet north and 1,170 feet east of the SW cor. of the W. Skurlock Survey No. 280, A-595.

In Gray County: A. J. Brown and others' No. 1 J. N. Duncan, 330 feet north and west of the SE cor. of the NW of Section 93, Block 3, I.&G.N. Operators Royalty & Producing Co.'s No. 5 W. W. Harrah, 990 feet south and west of the NE cor. of Section 150, Block 3, I.&G.N. Same company's No. 6 Harrah, 330 feet north and west of the SE cor. of the SW of the NE of Section 150, Block 3, I.&G.N. Phillips Petroleum Co.'s No. 1 A. Barrett, 330 feet north and 150 feet east of the SW cor. of the W half of the north 56 acres of Section 136, Block 3, I.&G.N.

PETROLEUM SAFETY COUNCIL

The Kansas-Oklahoma Chapter of the Petroleum Safety Council will meet at the Booth Hotel, Independence, Kansas, at 10 a.m., Friday, October 31.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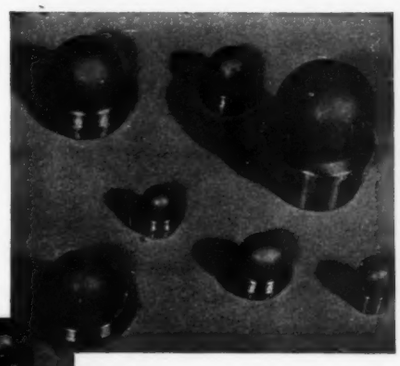

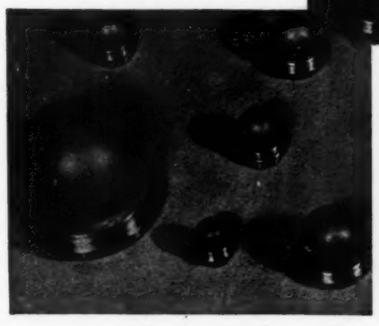

Petroleum Equipment Co.
of Texas, Incorporated
JON R. LONG, Manager
Plant and Office: Fort Worth, Texas

Warehouse Stocks: Houston, San Antonio and Wichita Falls, Tex.; Tulsa, Okla.; El Dorado, Ark.; Coffeyville, Kansas.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of August, 1930

Runs

	Month (bbls.)	Dy.ave. (bbls.)
Prairie P. L. Co.*	3,103,000	100,100
Gulf P. L. Co.	1,373,377	44,302
Texas P. L. Co.	647,390	20,880
Magnolia P. L. Co.	1,376,804	44,413
Empire P. L. Co.	1,821,333	58,753
Cosden P. L. Co.	752,407	24,271
Sinclair P. L. Co.*	3,044,206	98,200
Oklahoma P. L. Co.	3,184,696	102,732
Other lines*	5,456,000	176,000
Total August	20,759,207	669,651
Total July	21,571,630	695,858
Difference	812,423	26,207

Shipments

Prairie P. L. Co.†	5,324,835	171,769
Gulf P. L. Co.	1,338,477	43,177
Texas P. L. Co.	1,406,320	45,365
Magnolia P. L. Co.	1,973,649	63,666
Empire P. L. Co.	2,164,408	69,820
Cosden P. L. Co.	727,772	23,477
Sinclair P. L. Co.†	3,244,253	104,653
Oklahoma P. L. Co.	3,092,998	99,774
Other lines*	4,557,000	147,000
Total August	23,829,712	768,701
Total July	23,592,103	761,035
Difference	237,609	7,666

Stocks

Prairie O. & G. Co.*	37,015,000
Gulf P. L.-Gypsy Oil Co.	8,085,136
The Texas Company	4,245,403
Magnolia Petroleum Co.	5,954,406
Empire P. L. Co.	5,296,159
Mid-Continent Pet. Corp.	3,784,079
Sinclair Crude Oil Pur Co.*	20,414,000
Oklahoma P. L. Co.	3,160,977
Carter Oil Co.	9,564,846
Other lines*	24,754,000
Total August	122,274,011
Total July	123,633,063
Difference	1,359,052

*Estimated. †Prairie and Sinclair shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF SEPTEMBER

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for August and September:

	Aug.'30	Sept.'30
Nat. Transit	118,378.49	126,408.01
S. W. Pa. P. L.	70,719.58	76,584.80
Eureka P. L.	272,439.56	286,627.14
Buckeye P. L. (Macksb'g)	320,091.51	335,374.02
Buckeye P. L. (Cleve)	11,270.77	11,061.63
Buckeye P. L. (Lima, etc.)	91,699.80	93,802.50
Indiana P. L.	3,933.81	5,054.52
Cum'land P. L.	169,133.16	179,527.92
N. Y. Transit	25,399.13	39,583.19
Tidewater P. L.	26,087.89	25,675.10
Pure Oil	255,892.02	191,912.84
Stoll Oil Rfg	3,500.15	3,317.59
Bradford Tran.	314,490.88	322,922.66
Total	1,683,036.75	1,697,851.92
Daily avg.	54,291.51	56,595.07

Note—Indian Refining Co. had other receipts of 299,732.91 bbls.

Eastern Gulf Oil reported runs of 8,872.74 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September:

	Aug.'30	Sept.'30
Nat. Transit	479,192.75	484,508.49
S. W. Pa. P. L.	280,390.24	256,281.87
Eureka P. L.	273,684.53	244,918.35
Buckeye P. L. (Macksb'g)	160,065.90	216,745.14
Buckeye P. L. (Cleve.)	1,713.66	1,712.02
Buckeye P. L. (Lima, etc.)	1,394,277.59	1,075,693.53
Indiana P. L.	1,335,998.08	1,128,187.83
Cum'land P. L.	205,045.71	136,895.24
Southern P. L.	69,211.54	66,892.64
N. Y. Transit	172,930.08	154,725.36
Northern P. L.	172,321.25	124,793.90
Tidewater P. L.	504,721.54	585,647.20
Pure Oil	107,492.59	183,063.50
Indian Ref.	375,829.22	373,510.38
Bradf'd Trans	381,474.90	425,829.96
Tuscarora Oil	503,354.86	360,569.02
Total	6,370,704.44	5,819,974.55
Daily avg.	205,506.59	193,999.15

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of August and September:

	Aug.'30	Sept.'30
Nat. Transit	808,225.58	765,612.70
S. W. Pa. P. L.	490,266.60	542,827.03
Eureka P. L.	1,603,479.10	1,516,135.69
Buckeye P. L. (Macksb'g)	694,516.37	665,285.49
Buckeye P. L. (Cleve.)	66,815.01	66,500.27
Buckeye P. L. (Lima, etc.)	5,004,621.10	5,065,078.07
Indiana P. L.	836,606.05	759,036.08
Cum'ld P. L.	547,844.28	548,890.67
South'n P. L.	245,676.27	294,744.69
N. Y. Transit	144,696.68	139,813.32
North'n P. L.	416,121.94	480,715.71
Tidew'r P. L.	1,043,300.56	957,099.18
Pure Oil	507,198.43	520,059.95
Indian Ref.	161,817.52	88,060.52
Tuscarora	278,425.17	276,805.35
Brad Trans	197,440.63	125,354.27
Total	13,047,051.84	12,812,018.99
Decrease	221,511.00	235,032.85

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of August and September showing gross stocks of the above fields:

	Aug.'30	Sept.'30
Penna.	4,044,608.48	3,921,022.36
Lima	815,257.62	828,284.49
Kentucky	594,501.57	596,275.33
Mid-Cont.	7,051,195.35	6,946,872.38
Illinois	44,760.06	10,632.05
Michigan	496,728.56	508,932.40
Total	13,047,051.84	12,812,018.99

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1927	1928	1929	1930
Jan.	56,209	52,904	51,749	75,907
Feb.	61,298	57,002	51,833	79,256
Mar.	63,247	57,485	54,252	76,688
April	60,927	56,812	58,444	84,536
May	60,284	62,067	59,902	80,548
June	62,757	58,230	58,833	75,430
July	58,674	57,144	56,087	68,921
Aug.	60,870	57,745	66,087	54,291
Sept.	60,285	53,487	67,315	56,595
Oct.	147,080	58,100	76,093	.....
Nov.	57,275	53,365	74,831	.....
Dec.	53,089	52,025	74,561	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1927	1928	1929	1930
Jan.	141,227	146,465	165,721	217,623
Feb.	138,534	167,368	159,387	224,355
Mar.	133,777	158,883	161,474	228,846
April	140,227	172,935	169,737	241,845
May	144,594	180,559	184,281	248,383
June	149,772	188,024	185,404	234,401
July	151,850	189,470	194,763	207,094
Aug.	188,653	192,853	184,946	205,506
Sept.	144,213	194,138	201,214	193,999
Oct.	147,036	176,000	191,367	.....
Nov.	150,975	176,898	202,743	.....
Dec.	144,504	173,572	186,257	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1928	1929	1930
Jan.	12,276,710	7,596,564	12,220,045
Feb.	12,180,419	8,738,835	12,991,561
Mar.	12,239,725	9,002,058	13,247,217
April	11,740,125	8,978,172	13,233,961
May	11,602,468	8,903,560	13,052,953
June	11,287,678	8,921,275	13,396,855
July	10,819,321	9,211,595	13,268,562
Aug.	10,236,743	9,440,643	13,047,051
Sept.	9,660,910	9,443,057	12,812,018
Oct.	9,229,709	9,441,101	.....
Nov.	8,366,553	9,868,538	.....
Dec.	7,539,555	11,253,953	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Sept. 30	1,879,669.20
Runs from wells	431,326.01
Other receipts	147,343.64
Regular deliveries	346,016.53
Other deliveries	222,967.58

The amount of Illinois oil run by the Tidewater Pipe Co. in September was 25,675.10 bbls. Deliveries were 25,675.10 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1930		
Sept.	457,001.11	371,691.63
1929		
Feb.	517,320.17	503,387.70
March	728,319.67	586,049.60
April	615,374.27	654,297.96
May	608,981.60	673,812.83
June	568,454.70	818,846.97
July	611,106.79	828,159.44
Aug.	625,851.99	746,425.06
Sept.	582,457.66	669,947.72
Oct.	622,302.83	558,558.60
Nov.	565,108.75	427,064.63
Dec.	548,924.41	489,368.81
1930		
Jan.	543,887.95	498,293.93
Feb.	548,416.38	414,586.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	375,742.43

Tidewater Pipe Co., Ltd., also delivered in September, 308,731.02 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1929-30—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
September	19,433	.....	31,834	11,900	6,200	69,367	.....	.....	.....	.....	4,800	74,167
October	9,065	4,677	42,065	12,000	9,677	77,484	.....	.....	.....	.....	4,097	81,581
November	18,900	8,167	41,667	14,699	3,767	87,200	.....	.....	.....	.....	2,400	84,600
December	12,968	.....	46,129	13,613	7,225	79,935	.....	.....	.....	.....	2,335	82,290
January	18,484	1,936	34,257	22,323	9,516	86,516	.....	.....	.....	.....	2,258	88,774
February	7,678	.....	24,714	14,321	5,000	51,714	.....	.....	.....	.....	2,607	54,321
March	10,548	3,065	28,871	8,774	22,484	73,742	.....	.....	.....	.....	805	74,548
April	7,767	.....	14,369	11,600	7,433	41,167	.....	.....	.....	.....	7,600	48,767
May	5,194	8,461	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	3,200	.....	33,933	20,767	2,333	65,233	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	35,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1929-30—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
September	32,967	9,000	136,633	54,300	32,900	265,800	6,900	22,900	5,367	1,333	36,500	302,300
October	39,936	10,519	137,096	38,160	38,644	264,355	6,613	13,388	11,064	4,419	35,484	299,839
November	23,633	12,900	125,200	41,100	28,200	237,033	2,233	12,533	6,667	2,500	23,933	260,966
December	29,774	15,387	133,742	31,000	23,775	233,678	5,548	16,484	6,613	1,774	30,419	264,097
January	31,161	10,678	134,581	38,677	43,806	248,903	4,322	6,453	.....	548	11,323	260,226
February	24,500	14,714	147,357	36,036	39,786	262,933	2,821	11,072	3,500	1,964	19,357	281,750
March	28,355	3,839	151,806	36,645	34,903	255,548	4,323	11,445	839	3,419	19,226	274,774
April	31,400	8,933	123,500	40,433	19,434	223,700	.....	7,400	2,433	4,167	14,000	237,700
May	24,129	9,322	174,194	39,291	28,226	275,161	8,194	11,548	2,935	1,323	24,000	299,161
June	51,533	15,667	121,067	45,033	25,033	258,333	4,413	17,367	2,167	1,333	35,300	293,633
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	2,387	19,323	299,903
August	39,033	4,484	145,613	32,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1929-30—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
September:	Month	26,104,264	21,299,490	26,067,065	3,780,690	1,959,720	1,718,250	2,347,020	4,075,000	87,351,499
	Daily average	870,142	709,983	868,902	126,023	65,324	57,275	78,234	135,917	2,911,716
October:	Month	26,895,160	20,821,646	26,412,167	3,429,468	2,000,027	1,956,326	2,392,952	4,482,000	88,389,746
	Daily average	867,586	671,666	852,004	110,628	64,517	63,107	77,192	141,358	2,851,282
November:	Month	21,317,540	19,193,760	24,896,034	3,430,560	1,911,060	1,853,565	2,350,110	4,029,000	78,981,629
	Daily average	710,585	639,798	829,868	114,352	63,702	61,785	78,337	134,300	2,632,720
December:	Month	21,705,554	20,092,876	25,609,823	3,549,066	1,917,071	1,878,352	2,378,754	4,168,100	81,299,596
	Daily average	700,179	648,156	818,394	114,486	61,841	60,592	76,734	134,455	2,622,568
January:	Month	21,983,242	20,802,984	25,284,352	3,273,197	1,817,685	1,780,969	2,151,090	4,216,000	81,309,519
	Daily average	709,137	671,064	815,624	105,587	58,635	57,451	69,390	136,000	2,622,888
February:	Month	20,885,660	17,977,624	23,314,637	2,965,704	1,608,376	1,738,425	2,027,984	3,780,000	74,298,410
	Daily average	745,916	642,058	832,668	105,918	57,442	62,087	72,429	135,000	2,653,515
March:	Month	19,699,979	19,112,306	25,503,880	3,504,395	1,817,871	1,943,093	2,337,028	4,231,500	78,149,252
	Daily average	635,483	616,526	822,679	113,045	58,641	62,680	75,388	136,500	2,520,943
April:	Month	18,768,743	19,541,310	24,799,768	3,734,253	1,734,460	1,909,552	2,334,810	4,134,000	76,946,896
	Daily average	625,625	651,377	826,658	124,475	57,482	63,652	77,827	137,800	2,564,897
May:	Month	19,044,444	20,587,503	26,214,068	3,978,385	1,659,895	1,914,290	2,565,219	4,402,000	80,365,804
	Daily average	614,337	664,113	845,615	128,325	53,545	61,751	82,749	142,000	2,592,445
June:	Month	18,020,795	19,754,900	25,643,705	3,765,060	1,704,060	1,923,621	2,519,190	3,880,000	77,211,331
	Daily average	600,693	658,490	854,791	125,503	56,802	64,187	83,973	129,366	2,573,711
July:	Month	18,802,024	18,032,514	25,910,929	3,541,409	1,713,680	2,079,763	3,275,894	3,844,000	77,200,219
	Daily average	606,517	581,694	835,835	114,239	55,280	67,089	105,674	124,000	2,490,328
August:	Month	18,770,466	17,255,034	25,538,513	3,491,530	1,700,102	2,151,120	3,193,341	3,417,000	75,517,106
	Daily average	605,499	556,614	823,823	112,630	54,842	69,391	103,011	110,226	2,436,036
Total 12 months		261,997,871	234,471,947	305,194,440	42,443,717	21,534,067	22,847,332	29,873,392	48,659,660	957,021,907